

ANTHEM PHOENIX

A Subsidiary of the Del Webb Corporation

SCOPE OF WORK

**ADOT TRACS No.: 017 MA 227 H5326 01C
I-17-1-553**

**Construction Of The New
Interstate 17/Daisy Mountain
Traffic Interchange**

New Interchange Freeway Improvements

JUNE 1999

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SECTION 100 - GENERAL INFORMATION

NOTE: This scope of work is presented in two (2) parts. The Project Scope of Work is contained in this section. It includes information specific to this project.

The section Dictionary of Standardized Work Tasks is presented as a section within the scope of work. It includes information that is common to all consultant design contracts. The work described in Dictionary of Standardized Work Tasks is required for this project.

110 LOCATION

The project involves the completion of an ADOT design concept study, federal level environmental study, a federal level Change of Access Report, and the final design for the construction of a new traffic interchange on Interstate 17 in the vicinity of Deadman Wash. This interchange will be located approximately two miles south of the existing I-17/Anthem Way Interchange.

The new interchange is necessary to provide for local access between Interstate 17 and the Anthem Phoenix community at Daisy Mountain Drive. This project includes the new Daisy Mountain Drive roadway between Interstate 17 and Galvin Parkway intersection.

120 DESCRIPTION

- A. Design Concept Study: This phase of the project involves the preparation of a Design Concept Report (DCR) to determine the preferred interchange configuration and Daisy Mountain Road alignment which will be carried forward to final design. The Design Concept Study phase shall include the following work items:
1. Review the AASHTO Controlling Design Criteria for the existing Interstate 17 roadway. Prepare an initial and final AASHTO Controlling Design Criteria Report.
 2. Prepare a Traffic Report including a capacity and level-of-service analysis to develop the minimum number of lanes for all roadways, intersection requirements, signal warrant analysis, interchange ramp terminal spacing, turn lane storage lengths, and freeway auxiliary lane requirements to provide an acceptable level-of-service through the design year.
 3. Complete an Initial Drainage Study with sufficient detail to provide preliminary cross-drainage structure opening requirements to support the roadway alternatives, while identifying existing drainage problems and possible solutions.
 4. Prepare an Alternative Selection Report, with supporting engineering and Environmental Overview data, recommending those alternatives to be carried forward for complete evaluation within the Initial Design Concept Report (IDCR) and Draft Environmental Assessment (DEA). The Environmental Overview section of the report will address environmental fatal flaws for the alternatives to provide order of magnitude environmental evaluations for

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alternative comparison. Following a presentation to the project team, the report will be distributed for review, comment and consensus.

5. Prepare Initial Design Concept Report (IDCR) for project team review, comment and completion of the alternative selection process. Anthem Phoenix and ADOT will review this document prior to formal distribution to the project team.
6. Prepare a Summary of Comments to document the proposed actions in response to the review comments received from the Initial DCR submittal.
7. Prepare the Final Design Concept Report (DCR) for ADOT signatures and distribution. Anthem Phoenix and ADOT will review this document prior to submission of the final report for signatures.

B. Environmental Assessment: This phase of the project involves preparation of a federal level Environmental Assessment to analyze the environmental impacts associated with the traffic interchange and crossroad alternatives shown in the DCR for the Daisy Mountain T.I. ADOT will administer the completion of the environmental evaluation for this project. The work shall include the following:

1. Conduct a public involvement program to solicit input from the local community and affected agencies in the project vicinity. A Public Involvement Plan and Scoping Report will be required for the project.
2. Prepare a federal level Draft Environmental Assessment (DEA) for publication in accordance with NEPA requirements. FHWA will be the Lead Agency for the Environmental Document. During the Scoping Process, the determination of the Draft Environmental Assessment format will be discussed with and agreed upon by FHWA, ADOT, Anthem Phoenix and the Consultant prior to data gathering for the technical reports. A pre-review of the Draft Environmental Assessment will be conducted by ADOT and Anthem Phoenix prior to formal submittal to the FHWA. Signatures by ADOT and FHWA will be required prior to publishing and distributing the Draft Environmental Assessment to other agencies and the public for review and comment.
3. Provide documents for distribution, support graphics and personnel for public meetings and the Public Hearing.
4. Prepare federal level Final Environmental Assessment (FEA). The Final Environmental Assessment will be prepared in Addendum format. A pre-review of the Final Environmental Assessment will be conducted by ADOT and Anthem Phoenix prior to submittal to the FHWA for final approval.

C. Federal Change of Access Report: This phase of the project involves the preparation of a federal level Change of Access Report. This report will include the required engineering, traffic analysis and environmental documentation necessary to allow the Federal Highway Administration to approve this additional interchange access to Interstate 17 at Daisy Mountain Drive.

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This document will be prepared in accordance with the appropriate FHWA policy.

- D. Final Design: This phase of the project involves the preparation of final plans, specifications and cost estimates (PS&E) necessary for the construction of the new Daisy Mountain Traffic Interchange.

130 PURPOSE

The project involves the completion of a Design Concept Report (DCR), environmental studies necessary for the completion of a federal level Environmental Assessment (EA), engineering studies necessary for the completion of a federal level Change of Access Report, and final design (PS&E) documents for the construction of the new Daisy Mountain TI. The new interchange is anticipated to improve the traffic capacity, safety and operational characteristics of Interstate 17 between the Anthem Way TI and the Pioneer Road TI. These improvements will allow the local and regional transportation system to meet the projected traffic demand caused by new development which will occur in the immediate area of the traffic interchange.

140 CONSTRUCTION COST

This project has been approved by the Transportation Board and is included in the five-year construction program. Funds have been allocated by private funding in the amount of \$18 million for FY 2003.

150 ORGANIZATION

Anthem Phoenix will retain design consultants to perform a variety of engineering services for the Daisy Mountain TI project. ADOT will retain an environmental consultant to perform the environmental evaluation of the proposed improvements. The following sections define the responsibilities of ADOT, Anthem Phoenix and the Consultant Team with the related scope of services.

160 LENGTH OF SERVICES

The length of service shall be seven hundred thirty (740) calendar days from Notice-to-Proceed, including all reviews by the project team members and involved agencies. Post design services shall be added by a separate contract modification.

170 SCHEDULE

The Design Concept Report, Environmental Assessment and Change of Access Report shall be finalized and approved to allow the Final Design to start within 730 calendar days from Notice-to-Proceed. The bid advertisement for the construction project shall be no later than July 2002.

171 Project Schedule

The Consultant shall submit an initial schedule within 10 calendar days after Notice-to-Proceed. The proposed schedule shall be compatible to the ADOT scheduling models.

ADOT will provide activity codes and/or models after consultant selection (prior to contract finalization). The schedule submitted shall be customized to reflect the exact needs and requirements of this project. The Primavera format is recommended to be compatible with the ADOT scheduling system.

172 Project Schedule Updates

The Consultant shall submit monthly updates to the approved schedule by the 18th of each month to ADOT and Anthem Phoenix. The schedule shall include a summary of milestones. If the milestones show negative float the consultant shall include a narrative of corrective actions to put the design schedule back on time for delivery.

Updates shall be provided on disk to the ADOT Project Manager. A "hard copy" report may also be provided as requested by the ADOT Project Manager and Anthem Phoenix Project Manager.

173 Monthly Progress Meetings

The Consultant shall arrange and attend regularly scheduled monthly progress meetings with the ADOT Project Manager and the project team members. The Consultant shall record "minutes" of the progress meetings for distribution to the team members within ten (10) calendar days of the meeting.

The Consultant shall arrange and attend regularly scheduled monthly progress meetings with the Anthem Phoenix Project Manager and the consultant project team members. The Consultant shall record "minutes" of the progress meetings for distribution to the team members within ten (10) calendar days of the meeting.

180 RESPONSIBILITY CHART

Appendix B includes a chart indicating the division of responsibilities between the Consultant, ADOT, Anthem Phoenix and other project stake holders. This chart is intended to serve as a "checklist". In the event of a conflict the written Scope of Work shall take precedence.

190 ENVIRONMENTAL EVALUATION CHECKLIST

Environmental mitigation requirements identified in the Environmental Assessment shall be incorporated into the project design.

SECTION 200 - DESIGN REFERENCES

Design references developed and published by ADOT, other agencies and adopted by ADOT for use in the design of this project are listed in the ADOT Project Development Process Manual, and the ADOT Roadway Design Guidelines. The Consultant is advised that while possession of all of these documents is not necessary to successfully complete the project, the Consultant is responsible for designing in accordance with the applicable documents and current revisions and supplements thereto.

The following document(s) will be produced for this project and will be provided to the selected Design Consultant:

210 ADOT PUBLICATIONS (Use Current Editions)(US CUSTOMERY UNITS)**211 Standard Drawings**

- A. Construction Standard Drawings (31-001)
- B. Structures Section Standard Drawings (31-002)
- C. Traffic Signals and Lighting Standard Drawings (33-001)
- D. Signing and Marking Standard Drawings (33-002)
- E. Standards for Right-of-Way Plans
- F. CADD Standards (31-060)
- G. Drafting Guides for Use in Office of Field (31-004)
- H. Roadway Design Guidelines (31-089)

212 Specifications

- A. Standard Specifications for Road and Bridge Construction (31-066)
- B. Photogrammetry and Mapping Standard Specifications (31-063)
- C. Stored Specifications, revised to date, as held and issued by Contracts and Specifications Services.
- D. Aerial Mapping Specifications, August 20, 1993

213 Manuals

- A. Manual of Field Surveys (31-059)
- B. Traffic Control Manual for Highway Construction and Maintenance (31-086)
- C. Right-of-Way Section, Volume V of ADOT Manual
- D. Manual of Approved Signs (31-014)
- E. Reinforced Concrete Box Culvert Manual (31-019)
- F. Hydrologic and Hydraulic Training Session Manual (31-013)
- G. Materials Preliminary Engineering and Design Manual (31-017)
- H. Materials Testing Manual (31-016)
- I. Materials Policy and Procedure Directives Manual (31-011)
- J. Utilities Manual (Guide for Accommodating Utilities within the Highway Right-of-Way)(31-007)
- K. Bridge Design and Detailing Manual (31-069)
- L. Guidelines for Computing Approximate Quantities for Bridges (31-075)
- M. Pipe Selection Guidelines and Procedures (31-086)
- N. Highway Development Process Manual (31-077)

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- O. Highway Drainage Design Manual Hydrology (31-012)
- P. Auxiliary Lane Design Guidelines
- Q. Drainage Manual, Volume I – Policy (31-061)
- R. Value Analysis Program Manual, latest revision
- S. ADOT Construction Manual (37-002)
- T. ADOT Erosion and Pollution Control Manual for Highway Design and Construction (31-078)
- U. ADOT/OSDA Forest Service Highway Design Guidelines Manual (31-074)

214 Policies, Guides, and Procedures

- A. Roadway Guidelines for Use in Office and Field
- B. Guide for Highway Geometric Design
- C. Drafting Guides for Use in Office and Field
- D. Signing Guidelines – ADOT Traffic Design Services
- E. Guidelines for Highway Illumination, PGP-10A-1-2, ADOT Traffic Operations Services
- F. Traffic Engineering Policies, Guides, and Procedures
- G. Enroachments in Highway Rights-of-Way, [Rule R-7-3-712], April 14, 1981
- H. A Policy on Application of the "Procedural Guide for Review of the AASHTO Controlling Design Criteria on Existing ADOT Roadways," January 1987
- I. February 28, 1989 Office Memo to William A. Wakefield from Pamela K. Lowe regarding Drainage Structure Designation on Plan Sheets
- J. Design Concept Report Development Procedures, Highway Development Group Policy and Implementation Memorandum No. 89-5, December 24, 1989
- K. August 22, 1998 Information Bulletin (No. 88-14) from Engineering Consultants Services regarding survey transmittals.
- L. State Route Construction within Town/City Limits, Highways Division Policy and Implementation Memorandum No. 90-19, December 31, 1980
- M. Highway Development Group Policy and Implementation Memorandum No. 91-10, Design Frequencies for Drainage Structures
- N. Highway Development Group Policy and Implementation Memorandum No. 88-1, August 3, 1992 Retaining Wall Policy
- O. Memo from Terry Otterness to Designers and Districts dated May 31, 1991 regarding Application of the AASHTO Roadside Design Guide
- P. ITD Policy and Implementation Memorandum No. 95-02, May 1, 1995, Retaining Wall Selection Process
- Q. Highway Development Group Policy and Implementation Memorandum 90-9, November 27, 1990, Establishment of New Right-of-Way Requirements.
- R. Highway Development Group Policy and Implementation Memorandum 88-2, Project Assessment Reports (Revised to Date)

220 AASHTO PUBLICATIONS

- A. A Policy on Geometric Design of Highways and Streets, 1994 ("Green Book")
- B. Roadside Design Guide
- C. Manual of Subsurface Investigations

EXHIBIT "A"

- D. Guide for Design of Pavement Structures
- E. Standard Specifications for Highway Bridges
- F. Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals
- G. AASHTO Guide for Transportation and Environmental Design
- H. Manual for Maintenance Inspection of Bridges

230 FHWA PUBLICATIONS

- A. Work Zone Traffic Control Standards and Guidelines
- B. Manual on Uniform Traffic Control Devices
- C. FHPM – Volume 6, Chapter 7, Section 3, Subsection 2, "Hydraulic Design of Highway Encroachments of Flood Plains".

240 MARICOPA COUNTY DEPT OF TRANSPORTATION

- A. MCDOT Roadway Design Manual
- B. MAG Uniform Standard Details and Specifications for Public Works Construction

250 PUBLICATIONS FROM OTHER SOURCES

251 Arizona State Parks Standards

- A. Standards for Park Roads and Other Related Improvements

252 American Congress on Surveying and Mapping

- A. Metric Practice Guide for Surveying and Mapping

253 Transportation Research Board

- A. TRB Special Report 209 – Highway Capacity Manual

254 Federal Register

- A. Davis-Bacon Act (40USC2761) and Copeland (Anti-Kickback) Act (40 USC 276c), U.S. Department of Labor
- B. Walsh-Healey Public Contracts Act (41 CFR Part 50-205), U.S. Department of Labor
- C. Construction Safety Act (86 State. 96; 40 USC 333), U.S. Department of Labor
- D. ADA Current Standards for American with Disabilities Act Accessibility Guidelines Title I and II

255 The Industrial Commision of Arizona

EXHIBIT "A"

- A. Occupational Safety and Health Standards for the Construction Industry (ARS 230-410), Division of Occupational Safety and Health, April 1, 1981

256 Soil Conservation Service

- A. SCS Urban Hydrology for Small Watersheds (TR55)

257 Central Arizona Coordinating Committee

- A. Public Improvement Guide, November 1990

258 Anthem Phoenix

- A. Anthem Phoenix Development Traffic Impact Study
- B. Anthem Phoenix Development Master Drainage Plan
- C. Anthem Phoenix Development Master Plan
- D. Anthem Phoenix Development Section 404 Permit
- E. I-17/Desert Hills TI Construction Plans

260 ENVIRONMENTAL REGULATIONS AND POLICIES

261 Federal

- A. National Environmental Policy Act of 1969
- B. 36 CFR 800 – Protection of Historical and Cultural Properties
- C. 23 CFR 771 – Environmental Impact and Related Procedures
- D. 23 CFR 772 – Procedures for the Abatement of Highway Traffic Noise and Construction Noise
- E. FHPM 7-7-9 – Air Quality Guidelines
- F. Endangered Species Act of 1973, and Supplements
- G. Executive Order 11990 (Protection of Wetlands)
- H. Executive Order 11988 (Floodplain Management)
- I. National Historic Preservation Act of 1966
- J. Section 4(f) of the Department of Transportation Act
- K. Wild and Scenic Rivers Act of 1968
- L. Section 404 of the Clean Water Act of 1977 (33CFR320-330)
- M. Federal Farmlands Protection Policy Act of 1981
- N. FHWA Technical Advisory T6640.8, "Guidance Material for the Preparation of Environmental Documents"
- O. Section 1424(e) of the Safe Drinking Water Act (Sole Source Aquifer Review)
- P. 36 CFR 60 – Determinations of Eligibility for Inclusion in the National Register of Historic Places
- Q. Public Law 91-646 – Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970
- R. Wilderness Act of 1964, Public Law 88-577
- S. Arizona Desert Wilderness Act of 1990, Public Law 101-628
- T. Resource Conservation and Recovery Act (RCRA)
- U. Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA)
- V. Superfund Amendments and Reauthorization Act (SARA)

EXHIBIT "A"

W. United States Forest Service, Integrated Resource Management, September 1993

X. Section 402 Clean Water Act (NPDES)

262 State

A. Arizona Native Plant Law

B. Arizona Historic Preservation Law

C. State Water Quality Law (Section 401)

D. ADOT Action Plan

E. ADOT Highways Division Policy and Implementation Memorandum 89-05, "Preservation of Arizona's Wetlands," August 1, 1989

F. Noise Abatement Policy for State Funded Projects

G. Arizona Environmental Quality Act (EQA)

H. Hazardous Waste Management Act (HWMA)

I. Underground Storage Tank Act of 1986

263 Local

Local codes and ordinances relating to air quality, noise, dust abatement, light, etc.

SECTION 300 - DESIGN CRITERIA

This project will be designed in English units. The design of this project and the preparation of the Design Concept Report (DCR) and final contract documents (PS&E) will be guided by the Design Criteria presented in the ADOT Roadway Design Guidelines Manual. This document was prepared to establish uniform design policies, procedure design guidelines, and criteria. Deviation from the policies and criteria may be permitted with the approval of ADOT.

301 Supplemental Design Criteria

The design criteria listed in this section, and the ADOT Roadway Design Manual, may be supplemented by ADOT Project Design Memoranda provided during the course of the project.

310 General

- 311 Design Year - 2023
- 312 Design Speed -

Interstate 17:	65 mph
Anthem Way	
Outside ADOT Access Control:	50 mph
At Interchange:	45 mph
Ramps	
At Gore:	55 mph
At Crossroad:	35 mph
- 313 Pavement Design Life - Twenty (20) years

320 Geometry

- 321 Geometric Design Guidelines: ADOT Design Guidelines, but not less than the requirements of "A Policy of Geometric Design of Highways and Streets", AASHTO 1994
- 322 Slope Guidelines: See ADOT and MCDOT Design Guidelines
- 323 Maximum Gradient: See ADOT and MCDOT Design Guidelines
- 324 Maximum Radius of Curvature: See ADOT and MCDOT Design Guidelines

330 Roadway

- 331 Number of Through Traffic Lanes: To be determined by Traffic Analysis and Local Jurisdiction Street Classification Requirements
- 332 Number of Turn Lanes: To be determined by Traffic Analysis
- 333 Travel and Turn Lane Widths: See ADOT and MCDOT Design Guidelines

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334 Outside Shoulder Widths: See ADOT and MCDOT Design Guidelines

335 Median Widths: See ADOT and MCDOT Design Guidelines

340 Interchange

341 Access Control: Full Access Control

342 Design Speed: See ADOT Design Guidelines

343 Ramp Travel Lane Widths: See ADOT Design Guidelines

344 Ramp Shoulder Widths: See ADOT Design Guidelines

345 Ramp Terminal Spacing: To be determined based on sight distance, storage requirements and geometric requirements

346 Crossroad Width: See ADOT and MCDOT Design Guidelines

347 Vertical Clearance: See ADOT Design Guidelines

348 Lighting: Required at Gore and Ramp Terminal Intersections

350 Bridge Structure

351 Piers: To be Determined

352 Abutments: To be Determined

353 Foundations: To be Determined

354 Roadway: To be Determined

355 Sidewalk: To be Determined

356 Loading: Per Design Guidelines

357 Pedestrian Rail: To Be Determined

358 Barrier: To be Determined

360 Drainage

361 Drainage Frequency

A. Pavement: 10 years

B. Cross Culverts: Per ADOT and MCDOT Design Guidelines

C. Medians: Per ADOT and MCDOT Design Guidelines

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- D. Storm Drain: Per ADOT and MCDOT Design Guidelines
- E. Channels: Per Design ADOT and FCDMC Design Guidelines
- F. Retention Ponds: Per FCDMC Design Guidelines
- G. Detention Ponds: Per FCDMC Design Guidelines
- H. Bridge Decks: Per ADOT Design Guidelines
- I. Pump Stations: Not Required

- 362 Curb and Gutter Type: To be Determined
- 363 Maximum Velocity: Evaluate Erodibility of Native Soil
- 364 Minimum Velocity: Evaluate Deposition of Soil
- 365 Allowable Headwater: To Within Three Inches of Lowest Elevation of Top of Pavement
- 366 FEMA Considerations: Evaluate per ADOT Drainage Manual, Vol. 1, Parts A-3 and A-4
- 367 Erosion Control – To be determined per HEC-14 and HEC-15 and ADOT Erosion and Pollution Control Manual
- 368 Pavement Drainage – Evaluate per HEC-12 and ADOT Training Session Manual, Part D

370 Traffic

- 371 Signing Permanent Freeway: Rural-Urban Conventional Signing
- 372 Signing Temporary Traffic Control

380 Other Features

- 381 Sidewalk Width: To be Determined
- 382 Fencing Type: ADOT Std. Drawing C-12 Series
- 383 Cattle Guards: ADOT Std. Drawing C-11 Series
- 384 Guardrail/Barrier Type: ADOT Std. Drawing C-10 Series
- 385 Cattle/Game Crossings: To be Determined
- 386 Sidewalk Ramps: To meet ADA Requirements

EXHIBIT "A"

- 387 Retaining Walls: ADOT Std. Drawing B-18 Series or Appropriate Proprietary Alternate Retaining Wall Systems
- 388 Sound Barrier Walls: ADOT Std. Drawing B-30 Series or Appropriate Proprietary Alternate Sound Barrier Wall Systems

SECTION 400 - DESIGN WORK PERFORMED BY CONSULTANT

The Consultant shall be responsible for the design work and preparation of construction documents as outlined in this section and the standard design tasks listed in the Dictionary of Standardized Work Tasks.

The Consultant shall perform all work in accordance with the most current policies and procedures, unless otherwise directed by the Project Manager.

401 DESIGN CONCEPT REPORT PHASE

The project involves the completion of a Design Concept Report (DCR), environmental studies necessary for the completion of a federal level Environmental Assessment (EA), engineering studies necessary for the completion of a federal level Change of Access Report, and final design (PS&E) documents for the construction of the new Daisy Mountain TI. The new interchange is anticipated to improve the traffic capacity, safety and operational characteristics of Interstate 17 between the Anthem Way TI and the Pioneer Road TI. These improvements will allow the local and regional transportation system to meet the projected traffic demand caused by new development planned to occur in the immediate area of the traffic interchange.

The preferred interchange concept will be developed while conducting public involvement and environmental evaluation activities to assure local, state and federal agency concurrence. This project will include an ADOT environmental evaluation of alternatives and the determination of impacts and mitigation for the preferred action.

This study will be completed concurrent with the ADOT evaluation for Interstate 17 widening between SR101L and Black Canyon City, and the MCDOT evaluation of I-17 frontage roads between Carefree Highway and New River.

402 AASHTO Design Criteria Report

The Consultant, using "as-built" plans and a field reconnaissance, will perform a complete roadway inventory and evaluate the I-17 existing roadway for compliance with AASHTO Controlling Design Criteria as specified in the ADOT Procedural Guide.

The initial report shall summarize AASHTO criteria for the existing roadways and bridge structures. The final report will address proposed new construction and only those sections of the existing highway that will be incorporated into the new construction.

The evaluation shall identify existing design features which do not comply with desired AASHTO design criteria. The report shall describe how the features will be treated with the project. Design exceptions required will be clearly identified and justification for noncorrective action shall be clearly stated in the final report.

Such reasons as excessive cost, future remedial projects and nonaccident history are factors which might support not improving features. ADOT will review this summary and make recommendations for any exceptions to the established criteria. ADOT will inform the Consultant of any changes that will be made in the project concept and criteria.

403 Traffic Analysis and Report**A. Traffic Data**

The Consultant shall provide design traffic data for the mainline (I-17), crossroads (Anthem Way, and Daisy Mountain Road and Pioneer Road), and ramps including:

1. Twenty-four hour traffic counts
2. Intersection turning movement volumes
3. Ramp volumes
4. K, D, & T Factors

B. Traffic Operational Analysis

As early in the design process as possible, the Consultant shall conduct a traffic operational analysis that considers the existing and anticipated safety and capacity needs for the roadways studied within the project area. The traffic operational analysis shall include a capacity and level-of-service analysis. The analysis shall be summarized within a written report submitted concurrent with the Alternatives Selection Report Submittal. A summary of the results shall be included with the Initial DCR.

1) Capacity Analysis

The Consultant shall analyze the capacity of the I-17 main line, entrance and exit ramp junctions, weaving sections, and all intersections. The capacity analysis shall address Design Year 2020 traffic volumes assuming the Anthem Phoenix development is fully implemented in accordance with the approved master plan. The capacity and level-of-service analysis shall include the Anthem Way TI, Daisy Mountain Road TI and the Pioneer Road TI.

2) Level-of-Service Analysis

The Consultant shall analyze the Design Year 2020 level-of-service for all roadway elements. The goal is to provide level-of-service (LOS) "D" or better for the I-17 main line, weaving sections, entrance and exit ramp junctions, and signalized and unsignalized intersections. If these levels are not obtainable, the Consultant shall recommend improvements to reach the desired level-of-service.

This analysis should identify all roadway elements necessary to meet the level-of-service objective. While it is recognized that not all of the required improvements may be provided in this project, the design may be modified to provide for more simple implementation of future projects which would improve the capacity and levels-of-service.

3) Signal Warrant Analysis

The Consultant shall prepare signalization warrant studies (included within the DCR and Traffic Report) for the traffic signals at the following intersections:

- a) Ramp intersections with Daisy Mountain Road

403 Geotechnical Investigation

During the DCR phase of the project, the Consultant shall research existing "as-built" drawings and records to coordinate with ADOT Materials Group Geotechnical Engineering Section. The Consultant shall conduct a site visit with a qualified Geologist or Geotechnical Engineer. Observations shall be made of the materials encountered and their relative suitability for construction. A geotechnical assessment of the site shall be included within the DCR.

405 Drainage Analysis

A. The Consultant shall perform a drainage study in accordance with the current ADOT criteria, policies and procedures, and shall conform to the requirements of Section 1040. Basic hydrologic conditions should be fully quantified and discussed in the DCR.

B. The Consultant shall obtain and assess available and pertinent public information to identify floodplains and their impacts, to determine existing flow patterns and known drainage problems throughout the highway corridor including downstream reaches within the area of influence of the DCR. Analysis of preconstruction hydrologic conditions should be performed in order to evaluate hydraulics of existing structures and impacts of the drainage structure alternatives considered in the DCR.

C. The purpose of the drainage study is to identify potential drainage problems for the proposed improvement, to recommend solutions, and to establish initial culvert and channel sizing and alignments consistent with the improvement concept.

The Consultant shall carefully document and photograph all existing drainage problems, carefully evaluate recommended solutions and assure existing conditions are not impacted by roadway improvements.

The Consultant shall evaluate and recommend the need for a Section 404 Permit for each alternative identified in the DCR.

D. The Consultant shall document drainage problems, design approaches, solutions, and initial hydraulic structure requirements in the Initial and Final DCR.

E. Outside the limits of the new Daisy Mountain TI ramps, within the areas of the new auxiliary lanes, the modification of the I-17 drainage system will consist of simply extending the existing culverts to the length necessary to support pavement widening for the auxiliary lanes.

406 Structural Analysis

The Consultant will determine the need for new and/or reconstructed bridge structures on the project. The Consultant shall be fully knowledgeable of bridge types and structural requirements for traffic interchanges and recommend alternative structures and structure depths to the extent necessary for development of roadway concepts. TS&L drawings are not required as a part of this study.

407 Utilities and Railroads

- A. The Consultant shall contact and coordinate with all utility companies serving the project area to obtain utility as-built information during the DCR phase.
- B. The Consultant shall send the Final DCR to utility companies. All utility as-built information shall be shown on the construction plans prior to submittal of the Final DCR to utility companies.
- C. If there are railroads involved in the project the Consultant shall request that U&RR make the initial contact with the railroad company to obtain railroad location and facility maps.

408 Right-of-Way

The Consultant shall determine the existing land ownership and public right-of-way limits. The Consultant shall determine the requirements for new Right-of-Way (R/W) and easements including, but not limited to; new roadway right-of-way, slope easements, drainage easements, temporary construction easements, waste site right-of-way, access control right-of-way, borrow pit right-of-way, haul road right-of-way and excess right-of-way. The estimated cost of the new right-of-way shall be determined for each DCR alternative.

409 Alternatives Selection Report

The Consultant will present proposed alternative interchange concepts, roadway alignments, typical sections and other required information within the project area for review and approval by ADOT. The Consultant's recommendations will be supported by the Consultant's research and technical analysis, results of the Design Scoping Session, results of the Site Visit, initial AASHTO Controlling Criteria analysis, traffic study, drainage study, structures study, Environmental Overview, utility and right-of-way data, and other pertinent information.

The results of the alternatives analysis will be summarized within a brief report to explain the design concepts to be carried forward with the DCR analysis. A meeting will be held to present the results of this preliminary analysis. The discussion, comments and consensus from this meeting will be incorporated as the Consultant continues development. Additional written comments will be accepted after the meeting.

At this stage of development, A Public Information Meeting will be held in the project vicinity to explain the project and solicit comments from the public and interested groups.

410 Design Concept Report

The Consultant shall prepare a Design Concept Report (DCR) in accordance with ADOT Highway Development Group Policy and Implementation Memorandum No. 89-5. Each technical subject required to be included within the DCR must be addressed in sufficient detail to clearly document the design concepts, substantiate recommendations, document alternative considerations, and identify environmental impacts.

EXHIBIT "A"

Development of the DCR will involve the preparation of an Initial DCR and Final DCR. The Consultant shall recommend the alternative to be carried forth into design. Selection of the recommended alternative shall be consistent with and supported by the ADOT environmental documents. A maximum of three interchange alternatives will be evaluated within the Initial and Final DCR documents.

The Consultant shall submit the DCR as specified in Section 1050 of this Scope of Work. ADOT will give final approval for the selected alternative. The Consultant shall prepare initial alignments and alternatives to the extent necessary to evaluate the alternatives with regard to advantages and disadvantages of the following:

- A. Geometric and terrain limitations.
- B. Traffic accommodation during construction.
- C. Cost
- D. Drainage (Cross Drainage Only)
- E. Environmental (See Appendix C)
- F. Other issues of Concern (Public Acceptability, Right-of-Way, Etc.).

The Consultant shall prepare concept plans for three alternative interchange concepts, at a scale of 1" = 100', including the following:

- A. Typical Section – The desired traffic capacity of each alternative shall yield a Level-of-Service (LOS) of "D" or better for the design year.
- B. Plan and Profile shall be developed to such refinement that grades can be reasonably determined to determine roadway, bridge structure, bank protection, drainage, right-of-way, environmental impacts and utility conflicts can be identified and addressed in the report.
- C. Drainage Structures Treatment – Determine new installations, replacements, identification of potential special detail requirements, channelization, etc.
- D. Major Structure Treatments – The Consultant will determine the need for new and/or reconstructed bridge structures for the project. The Consultant shall be fully knowledgeable of bridge types and structural requirements for traffic interchanges to recommend alternative structures and structural depths to the extent necessary for the development of roadway concepts. Bridge TS&L drawings are not required as a part of this study.
- E. Traffic Interchange and Intersection Geometrics
- F. Construction traffic control plans.

EXHIBIT "A"

G. Cross-Sections – Evaluation of alternatives will involve preparation and use of cross-sections at an appropriate scale as required to determine preliminary earthwork quantity estimates (See Section 1060).

H. Walls and Wall Treatments

I. Environmental Mitigation Requirements.

411 FEDERAL CHANGE OF ACCESS REPORT

This phase of the project involves the preparation of a federal level Change of Access Report. This report will include the required engineering, traffic analysis and environmental documentation necessary to allow the Federal Highway Administration to approve this additional interchange access to Interstate 17 at Daisy Mountain Drive.

This document will be prepared in accordance with the appropriate FHWA policy.

412 SURVEYS AND MAPPING

The photogrammetric survey and mapping will be provided by Stanley Consultants (Cooper Aerial) using the NAD 1983 and NAVD 1998 datums. All information will be developed in English units.

The Consultant shall use the DTM provided by Stanley Consultants (Cooper Aerial) to prepare roadway cross-sections, drainage cross-sections, and structure surveys. If additional detail surveys are required to design this project, the Consultant shall provide complete field surveys which are suitable for contract documents preparation and meet the technical requirements of ADOT and the State Board of Technical Registration. The technical requirements of ADOT are as specified in Section 200, Design References, of this Scope of Work.

The Consultant shall obtain topographical surveys necessary to complete the project design. The Consultant shall obtain any permits (e.g. ADOT District, City of Phoenix, State Land Department, MCDOT, etc.) which may be required prior to beginning the field work. A traffic control plan may be required by each agency to obtain a permit for this survey work.

The Consultant shall not be responsible for setting R/W markers. The Consultant shall note the locations in the project plans. The contractor shall set the markers during the construction project.

415 MATERIALS DESIGN

416 Geotechnical Investigation

EXHIBIT "A"

An extensive geotechnical investigation may be required for final design purposes. The Consultant shall perform the geotechnical investigations necessary to prepare a Geotechnical Report, Bridge Foundation Report, Pavement Design Summary, Initial Materials Memorandum and Final Materials Memorandum in accordance with ADOT policies and procedures.

The Consultant shall be required to perform geotechnical investigations necessary to support the Deadman Wash bank protection design. The results of the bank protection geotechnical investigation will be documented in an individual Bank Protection Geotechnical Investigation Report, for approval by the Flood Control District of Maricopa County.

420 ENVIRONMENTAL STUDIES – To Be Provided by ADOT

All design activities required for the Initial Design Concept Report (IDCR) may proceed concurrently with the ADOT environmental studies performed for the project. If any ground disturbing activities are deemed necessary prior to final environmental clearance, coordination and approval by ADOT and/or affected federal, state, and local agencies will be required.

The Draft and Final Environmental Assessments will generally describe the impacts for the recommended action and the necessary Mitigation Measures in a format agreed to by FHWA, ADOT, Anthem Phoenix and the Consultant. The Technical Reports will be included as an appendix with sensitive cultural, habitat and species information removed from the document. Completed Technical Reports with all sensitive information relative to the project will remain on file with ADOT Environmental Planning Section.

421 Environmental Documentation – To Be Provided by ADOT

The Consultant shall provide technical information on the project to ADOT, FHWA and Anthem Phoenix to provide the necessary environmental documentation for the project. The Consultant shall be responsible for coordinating with ADOT Environmental Planning Section during the development of, and changes to, the project design concepts. The Consultant shall be responsible for the technical studies and analysis, agency coordination, public involvement and report preparation necessary to produce draft and final environmental documents for the project. The work shall be in accordance with applicable federal and state environmental regulations including, but not limited to, those presented in Sections 251-253 of this Scope of Work.

Upon initiation of the environmental evaluation portion of the work, the Consultant's representative responsible for the environmental portion of the work shall meet with FHWA, ADOT and Anthem Phoenix to discuss the project description, proposed methods of environmental evaluation, anticipated involvement with other agencies, report formats, etc. The Consultant, after this consultation, shall coordinate with affected federal, state, and local agencies and identified special interest groups to discuss the proposed project and its anticipated effects. This coordination may be in the form of letters and/or meetings as determined by the Consultant with ADOT, FHWA and Anthem Phoenix. This coordination shall be held early in the development stages of the alternative selection process.

During the course of the environmental evaluation, the Consultant shall maintain regular contact with ADOT and Anthem Phoenix, advising both entities of the progress of the work, the problems encountered and the resolution thereof.

422 Air Quality and Noise Analysis -- To Be Provided by ADOT

The Consultant shall prepare separate draft and final air quality and noise analysis technical reports supporting the conclusions reached in the environmental evaluation. These reports and all technical documentation used to produce these reports will be submitted to ADOT with the draft and final environmental documents.

These reports and all technical documentation used to produce these reports will be submitted to ADOT with the draft and final environmental documents. The Consultant shall summarize impacts from the air and noise studies in the main text of the environmental documents. The Technical Reports shall included in the appendix of those documents.

423 Cultural Resources Literature Search and Survey -- To Be Provided by ADOT

The Consultant shall perform a cultural resources literature search and conduct a Class 3 survey for this project. The draft Cultural Resources Survey Report describing the investigations conducted, the findings, and recommendations for further action shall be submitted to ADOT promptly upon completion of the survey. The Consultant shall summarize the applicable cultural resources information in the environmental documents. The Technical Reports shall be submitted to the ADOT Environmental Planning Section for filing but shall not be included in the Environmental Documents.

424 Archaeological Testing and Data Recovery -- To Be Provided by ADOT

The Consultant shall provide required technical information on the project to ADOT. If archaeological testing and recovery is determined to be necessary, these phases may be added to the Scope of Work by Contract Modification.

425 Local, State and Federal Permits -- To Be Provided by ADOT

The Consultant shall determine the need to obtain any Federal, State, and local permits (except as provided for in Section 455 of this Scope of Work), and shall so advise ADOT no later than thirty (30) days after the Notice to Proceed. The Consultant shall be responsible for obtaining any required survey permits from the appropriate Federal, State, or local agencies, and for obtaining any required rights-of-entry. If any permits are required, they will be added to the project by Contract Modification.

426 Visual Impact Analysis -- To Be Provided by ADOT

The Visual Impact Analysis is not developed as a separate Technical Report. The Consultant shall summarize the visual impacts in the environmental documents.

427 Biological Evaluation -- To Be Provided by ADOT

EXHIBIT "A"

The Consultant shall prepare draft and final Biological Evaluations supporting the conclusions reached in the environmental evaluation. The Biological Evaluations and all technical documentation used to produce them shall be submitted to ADOT concurrent with the draft and final environmental documents. The evaluations shall be prepared in accordance with the appropriate standards of the responsible agency (US Forest Service, US Fish and Wildlife Service, etc.).

428 Hazardous Materials Survey – To Be Provided by ADOT

The Consultant shall perform a Hazardous Materials Survey (Preliminary Initial Site Assessment) for this project. The survey shall be conducted through the use of visual surveys, past and present land use, and records searches of the appropriate agencies (ADEQ, EPA, State Fire Marshall, etc.). In a format acceptable to ADOT, the Consultant shall prepare a technical report describing the findings and recommendations for further action. The report shall be promptly submitted to ADOT upon completion of the survey. The Consultant shall summarize the report findings in the environmental documents. Any further hazardous materials investigations, or mitigation, which are required to be performed by the Consultant shall be added to the Scope of Work by Contract Modification.

435 PUBLIC INFORMATION MEETINGS AND HEARINGS

The Consultant, in accordance with the approved Public Involvement Plan (See Section 425), shall provide staff and/or materials for public information meetings and public hearings as outlined below. ADOT will be responsible for the Public Hearing Offer. The Consultant or ADOT will be responsible for advertisement of the public information meeting or Public Hearing Notice. ADOT or the Consultant will make all arrangements for the public information meeting and Public Hearing. ADOT will provide a moderator and any required liability insurance.

A. Public Information Meetings

The Consultant shall be available, at five (5) workdays notice, to attend meetings or make presentations at the request of ADOT. The purpose of these meetings shall be to inform the public of the scope, details, and anticipated schedule of the project. Such meetings and presentations may be held at any hours between 8:00 am and 12:00 midnight on any day of the week except legal holidays. The Consultant shall be responsible, as applicable, for the preparation of graphics, hand-out materials, minutes of the meetings, audiovisual displays and similar material for such meetings. All such meetings shall prominently identify ADOT. A maximum of two (2) such meeting are anticipated for this project.

B. Public Hearing

The Consultant and their staff shall be available, at five (5) work days notice, to attend or make presentations at the Public Hearing at the request of ADOT. The purpose of this meeting is to inform the public of the preferred alternative, provide information about the issues leading to the recommendation and provide the public with an opportunity to

EXHIBIT "A"

comment on these recommendations and issues. The Consultant shall be responsible as applicable, for the preparation of graphics, handout materials, minutes of the meetings, audiovisual displays and similar material for such meetings. All such materials shall prominently identify ADOT. One Public Hearing is anticipated for this project.

440 ROADWAY DESIGN

The Consultant shall prepare plans and documents for construction of all roadway elements, improvements and detour construction.

445 BRIDGE DESIGN AND BRIDGE DRAINAGE DESIGN

The Consultant shall design and prepare construction plans for the new bridge structures including:

- Daisy Mountain Road Underpass
- Daisy Mountain TI Ramp A over Deadman Wash
- Daisy Mountain TI Ramp B over Deadman Wash

The Consultant shall design and prepare construction plans for retaining walls in accordance with current ADOT policies and procedures.

450 ROADWAY DRAINAGE DESIGN

The Consultant shall conduct hydrologic analysis, hydraulic analysis and bank protection design for Deadman Wash within the project limits. The Consultant shall coordinate with Stanley Consultants to determine the flow quantity contributing to Deadman Wash from the Anthem Community. The approved Anthem Phoenix Master Drainage Report, provided by Stanley Consultants, Inc. shall be the basis for the hydraulic design.

The Consultant shall conduct a hydraulic analysis for Deadman Wash in accordance with FEMA, FCDMC and ADOT policies and procedures. Bank protection design shall be completed in accordance with FCDMC and ADOT design criteria. Bridge scour analysis shall be conducted in accordance with ADOT and FHWA design criteria.

Improvements to the hydraulic capacity and condition of the existing Interstate 17 bridge structures are not included within this project.

Outside the limits of the new Daisy Mountain TI ramps, within the areas of the new auxiliary lanes, the modification of the I-17 drainage system will consist of simply extending the existing culverts to the length necessary to support pavement widening for the auxiliary lanes.

453 Section 404 Permit

The Consultant shall review the content of the existing Section 404 Permit for the Anthem Community. The Consultant shall assist Anthem Phoenix in updating the existing permit,

or aid in processing a new Section 404 Permit for Deadman Wash within the project limits.

455 LANDSCAPE ARCHITECTURAL DESIGN

The Consultant shall coordinate with ADOT Roadside Development Section to ensure pipe sleeves are installed to support future landscape irrigation requirements for the project.

460 TRAFFIC ENGINEERING DESIGN

461 Traffic Data - Not Applicable

463 Roadway Lighting and Intersection Signalization

The Consultant shall prepare designs and construction documents for new traffic signals, including provisions for future traffic signal interconnection, at the following intersections.

- a) Daisy Mountain T.I. Ramp A/C Intersection
- b) Daisy Mountain T.I. Ramp B/D Intersection

The Consultant shall coordinate with the local electric utility to provide electric service in accordance with the requirements of Section 430 of this Scope of Work.

Traffic signal funding, maintenance and energy costs shall be discussed with the local agency. If warranted, an IGA for traffic signal and lighting shall be developed and executed with the local jurisdiction.

The Consultant shall comply with ADOT's current lighting policy and provide a complete set of roadway lighting construction documents including, but not limited to:

- a) Entrance and exit ramp gore areas.
- b) Ramp intersections with Daisy Mountain Drive.
- c) Conduits shall be installed in the foundations for all signs for future installation of sign lighting.

The Consultant shall locate and provide sleeves at ramp gores and crossroads. Longitudinal conduit and pullboxes shall be placed in accordance with the ADOT Freeway Management Section Design Guidelines to accommodate future ramp metering.

464 Signing Plans

The Consultant shall modify the existing Interstate 17 signing in accordance with the design requirements for the selected alternative for the Daisy Mountain T.I.

465 Pavement Marking Plans

The Consultant shall modify the existing Interstate 17 pavement marking in accordance with the design requirements for the selected alternative for the Daisy Mountain T.I.

470 RIGHT-OF-WAY

471 Right-of-Way Requirements Determination

The Consultant shall submit Preliminary Right-of-Way Plans concurrent with the Initial Design (30%) Submittal. Final Right-of-Way Plans shall be completed and submitted concurrent with the Preliminary Design (60%) Submittal.

No revisions or additions to the R/W requirements will be allowed after the Final Right-of-Way Plans submittal without the approval of Anthem Phoenix or the ADOT Corridor Engineer. Anthem Phoenix will be responsible for the property appraisals and acquisition of the right-of-way necessary to support the proposed improvements. Upon completion of construction, and acceptance of the project into the State Highway System by the Transportation Board, Anthem Phoenix shall transfer the property to ADOT.

472 Right-of-Way Acquisition

If new Right-of-Way is required for this project, Anthem Phoenix will acquire all necessary R/W and easements.

Based on the right-of-way requirements provided by the Consultant, ADOT will:

- A. Review the final R/W plans and associated legal description documents necessary for R/W acquisition.
- B. Review the necessary data for Transportation Board resolutions and project clearance letters.
- C. Review the original property title reports for the existing properties impacted by the proposed project.
- D. Review and approve the property conveyance document from Anthem Phoenix, which will convey the property to ADOT after construction completion.
- E. Present the project Board Resolution to the State Transportation Board for inclusion within the State Highway System upon acceptance of the construction project by the ADOT District Engineer.
- F. Prepare the Right-of-Way Clearance Letter for the project.

Based upon the right-of-way requirements provided by the Consultant, Anthem Phoenix will:

- A. Obtain the original title report for the properties impacted by the proposed project.
- B. Appraise the land area necessary for the project for each property impacted by the project.

EXHIBIT "A"

- C. Acquire the land area necessary for the project from each property owner impacted by the project.
- D. Provide property conveyance documents necessary to convey all properties necessary for the project to ADOT prior to advertising the project for bids.

The Consultant will:

- A. Prepare right-of-way plans which delineate the existing and proposed right-of-way acquisition area needed for the new roadway improvements.
- B. Prepare legal descriptions for the land area which is necessary for acquisition in support of the new roadway improvements.
- C. Prepare the Transportation Board Resolution to allow ADOT to present the project to the Transportation Board for acceptance into the State Highway System upon completion of the project and final acceptance by the ADOT District Engineer.

473 Temporary Entry Documents

Anthem Phoenix will obtain the required temporary entry documents for the project.

485 SPECIFICATIONS

The Consultant shall prepare the project in accordance with all ADOT requirements, policies and procedures. The bid package shall be coordinated with ADOT Contracts and Specifications Services to allow the project to be bid advertised by Anthem Phoenix as a publicly bid advertised project, in accordance with ADOT publicly bid procedures.

495 CONTRACTS AND SPECIFICATIONS PROCESS

The Consultant shall coordinate with Anthem Phoenix, ADOT Contracts & Specifications Section and the ADOT Project Manager to develop the construction documents and direct the project bid advertisement and contractor selection process to conform to Arizona Statutory requirements for a publicly bid advertised project. This project will be publicly advertised for construction bids by Anthem Phoenix, in accordance with ADOT policies and procedures.

Upon contractor selection, the Consultant shall complete the contractor recommendation forms necessary for concurrence by the Arizona State Transportation Board.

APPENDIX A
LOCATION MAP

RESPONSIBILITY CHART **APPENDIX B**

Page 1 of 4

		ITEM	Scope Section	Consultant	ADOT	Anthem Phoenix
A		AERIAL MAPPING	411			
	1.	Geodetic Control				X
	2.	Photogrammetric Control & Panels				X
	3.	Aerial Photography				X
	4.	Plotter Compilation				X
		a. Planimetric Map				X
		b. Contour				X
		c. Topographic Map		X		X
		d. Orthophoto Map				X
B		CONTROL SURVEYS	411			
	1.	Geodetic Control				X
	2.	Horizontal				X
	3.	Vertical				X
	4.	Topographic Map		X		X
	5.	Utility Locations		X		X
	6.	Right-of-way				
		a) Section Corner Ties & Land Ties				X
		b) New R/W Monumentation				X
	7.	Roadway Cross Sections		X		X
	8.	Drainage Cross Sections		X		X
	9.	Structures Surveys		X		X
C		ENVIRONMENTAL	420			
	1.	Environmental Analysis Document	421		X	
	2.	Air Quality Technical Report	422		X	
	3.	Noise Analysis Technical Report	422		X	
	4.	Cultural Resources Survey	423/424		X	
	5.	Visual Impact Analysis	426		X	
	6.	Biological Evaluation	427		X	
	7.	Hazardous Materials Survey	428		X	
	8.	Public Hearing/Meeting	435	X	X	X
D		MATERIALS INVESTIGATION	415			
	1.	Provide Soil Survey	416	X		
		a. Roadway	416	X		
		b. Bank Protection	416	X		

RESPONSIBILITY CHART **APPENDIX B**

Page 2 of 4

		ITEM	Scope Section	Consultant	ADOT	Anthem Phoenix
		c. Lateral Ditches	416	X		
		d. Earthwork	417	X		
	2.	Provide Bridge Foundation and Retaining/Sound Wall Fdn. Invest.	416	X		
	3.	Provide Testing and Analysis	416	X		
	4.	Provide Pavement Design	419	X		
	5.	Materials Memorandum	419	X		
E		DESIGN TRAFFIC DATA	460			
	1.	Gather Statistics	461			
		a. 2-Way ADT		X		
		b. 24 Hour Traffic Counts		X		
	2.	Prepare Traffic Data Sheets	461	X		
	3.	L.O.S. Analysis/Traffic Report	461	X		
	4.	Traffic Control Plan	462	X		
F		RIGHT-OF-WAY	470			
	1.	Develop Requirements	471	X		
	2.	Secure Title Search	472			X
	3.	Prepare R/W Plans and Legal Descriptions	472	X		
	4.	Prepare Transfer Documents	472	X		X
	5.	Provide Appraisals	472			X
	6.	Negotiate Right-of-Way	472			X
	7.	Condemnation Proceedings (N/A)	472			
	8.	Testify in Court (N/A)	472			
	9.	R/W Cost Estimates	472			X
	10.	Clearance Letter	472		X	
G		CONSTRUCTION PLANS				
	1.	Plot Design Survey	411	X		
	2.	Roadway Plans	440	X		
	3.	Bridge Plans	445	X		
	4.	Roadway Drainage Design	450	X		
	5.	Bank Protection Design	450	X		
	6.	Traffic Control Plans	462	X		
	7.	Roadway Lighting & Signalization	463	X		
	8.	Signing & Pvmnt. Marking Plans	464/465	X		

RESPONSIBILITY CHART
APPENDIX B

Page 3 of 4

		ITEM	Scope Section	Consultant	ADOT	Anthem Phoenix
	9.	Utility Adjustment Plans	433	X		X
	10.	Maintenance of Traffic Requirements	462	X		
	11.	Landscape Architectural Design	455	X		
H		BRIDGE STRUCTURES	445			
	1.	Bridge Structure Plans	445	X		
	2.	Retaining Wall Plans	445	X		
	3.	Noise Wall Plans	445	X		
I		SECTION 404 PERMIT	453			
	1.	Coordinate with Permitting Agencies		X	X	X
	2.	Prepare Permit Application		X		
	a.	Forms		X		
	b.	Sketches		X		
	c.	Supporting Documents		X		
	3.	Process Permit Application				X
J		UTILITY & RAILROAD	430			
	1.	Utilities Conflict Identification	431	X		
	2.	Conduct Utility Pre-Design	431	X		
	3.	Review Utility Adjustment Plans	432	X		
	4.	Secure Utility Relocation Schedule	433	X		
	5.	Secure Utility Agreements	433			X
	6.	Prior Rights Information	431		X	
	6.	Clearance Letter	434	X	X	X
K		COST ESTIMATES	480			
	1.	Prepare Construction Cost Estimates		X		
	2.	Prepare Bridge Cost Estimates		X		
	3.	Prepare R/W Cost Estimate				X
L		SPECIAL PROVISIONS	490			
	1.	Roadway Construction Plans		X		
	2.	Bridge Structure/Retaining Wall Plans		X		
	3.	Traffic Plans		X		
	4.	Drainage Plans		X		
	5.	Roadside Development Plans		X		
	6.	Utility Plans		X		X

RESPONSIBILITY CHART **APPENDIX B**

Page 4 of 4

		ITEM	Scope Section	Consultant	ADOT	Anthem Phoenix
M		CONTRACTS AND SPECIFICATIONS PROCESS (PS&E)	495			
	1.	Respond to Questions on Final Plans		X		
	2.	PS&E Revisions		X		
	3.	Addenda to PS&E, as required		X		
	4.	Preparation for Pre-bid Conference		X		X
	5.	Attend Pre-bid Conference		X		X
N		POST DESIGN SERVICES	600			
	1.	Respond to questions on project under construction		X		
	2.	Review and approve shop drawings		X		
	3.	Provide contact person		X		
P		SUBMITTAL REVIEWS	1060			
	1.	Roadway Construction Plans Review		X	X	X
	2.	Bridge Construction Plans Review		X	X	X
	3.	Stage I Design Submittal	1062	X	X	X
	4.	Stage II Design Submittal	1063	X	X	X
	5.	Stage III Design Submittal	1064	X	X	X
	6.	Stage IV Design Submittal	1065	X	X	X
	7.	Final Design Submittal	1066	X	X	X

EXHIBIT "A"

The following is the distribution of reports, plans, estimates and special provisions as specified in Paragraph 1060.E of the Scope of Work.

APPENDIX C DISTRIBUTION LIST Page 1 of 2 PLANS - SPECIAL PROVISIONS - COST ESTIMATES (Stage I, II, III & IV)		
Location	Title	No. of copies
Bridge Group	Bridge Design Leader	1
Contracts & Specifications	Transportation Engineer	1
District	District Engineer	2
District	Resident Engineer	1
District	Regional Traffic Engineer	1
Environmental Planning	Manager	1
FHWA	Area Engineer	1
Materials	Sr. Pavement Design Engineer	1
Materials	Geotechnical Section Engineer	1
Valley Right-of-Way Proj. Mgmt.	Liaison	1
Roadside Development	Manager	1
Roadway Design Section	Engineer-Manager	1
Valley Project Mgmt Section	Project Manager	1
Traffic Design	Traffic Engineer	1
Traffic Electrical Design	Traffic Engineer	1
Utilities & Railroad	Engineer-Manager	1
City of Phoenix	Design Coordination	2
MCDOT	Project Manager	2
Roadway Predesign	Project Manager	1
Utility Companies	Utility Coordination	Varies -
CROSS SECTIONS		
District	District Engineer	1
District	Resident Engineer	1
Materials	Geotechnical Section Engineer	1
Roadway Pre-design Section	Engineer-Manager	1
Valley Project Mgmt Section	Project Manager	1
MCDOT	Project Manager	1
City of Phoenix	Coordination Engineer	1

APPENDIX C DISTRIBUTION LIST

Page 2 of 2

Location	Title	No. of copies
AASHTO REPORT		
Roadway Group	Assistant State Engineer	2
Valley Project Mgmt Section	Project Manager	1
DRAINAGE REPORT		
Bridge Group	Drainage Design Leader	2
District	District Engineer	1
Roadway Design Section	Engineer-Manager	1
Valley Project Mgmt Section	Project Manager	1
MCDOT	Project Manager	1
City of Phoenix	Coordination Engineer	1
FOUNDATION REPORT		
Bridge Group	Bridge Technical Leader	2
Materials	Geotechnical Section Engineer	3
District	District Engineer	1
Valley Project Mgmt Section	Project Manager	1
GEOTECHNICAL REPORT		
Materials	Sr. Pavement Design Engineer	1
Materials	Geotechnical Section Engineer	3
District	District Engineer	1
Valley Project Mgmt Section	Project Manager	1
MATERIALS DESIGN REPORT/PAVEMENT DESIGNS		
Contracts & Specifications	Transportation Engineer	1
District	District Engineer	1
District	Resident Engineer	1
Materials	Sr. Pavement Design Engineer	3
Roadway Design Section	Engineer-Manager	1
Valley Project Mgmt Section	Project Manager	1

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERMODAL TRANSPORTATION DIVISION
VALLEY PROJECT MANAGEMENT GROUP

**DICTIONARY
OF
STANDARDIZED WORK TASKS**

JUNE 1999

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Dictionary of Standardized Work Tasks**SECTION 400 - DESIGN WORK PERFORMED BY CONSULTANT**

The consultant shall be responsible for providing the engineering services required to accomplish the work products identified in the Project Scope of Work. The services may include the tasks of data preparation, data interpretation, and document preparation including contract plans, special provisions and construction cost estimate.

402 AASHTO Design Criteria Report

Any changes to the design criteria which result in the need for a design exception shall be submitted to the Roadway Group for approval. The request shall describe the deficiencies, and the justification for the design exception. The report shall be developed consistent with Section 200. ADOT will forward the design exception request to FHWA, if necessary. The Consultant is responsible for providing copies for ADOT and FHWA. The request shall be submitted a minimum of fifteen (15) calendars days prior to the Stage II design submittal, in accordance with Section 1060.

412 SURVEYS AND MAPPING

The Consultant shall review data provided by ADOT. Any field surveys required shall be suitable for contract documents preparation and meet the technical requirements of ADOT and the State Board of Technical Registration.

- A. All surveys and mapping for projects utilizing existing roadway(s) shall be referenced directly to the existing as-built roadway centerline. The centerline shall be re-established in its original position by locating, marking, staking and referencing the PC, PT, TS, SC, CS, ST, PI (if possible), and a minimum of fifty (50) feet station intervals along the curves and one hundred (100) feet station intervals on tangents. The use of offset baselines for re-establishing or defining the existing centerline is not permitted unless approved in advance by ADOT. The centerline stationing of the project shall be on ADOT's established field stationing.
- B. Completed surveys shall be submitted in permanently bound books (3-ring binders are not acceptable) with the final plans. The surveys shall include locations, stakes and references of control points, (including the beginning and ending points of the project), PC's, PT's and PI's (if possible) of curves, POT's with a maximum interval of one thousand (1,000) feet, and bench marks on alternate sides of the roadway with a maximum interval of five hundred (500) feet. Any survey data provided must be certified by an Arizona Registered Land Surveyor. Any coordinates used shall comply with the Arizona State Plane Coordinate System.

EXHIBIT "A"

C. Surveys may include, as applicable:

1. Base line control
2. Control for aerial mapping
3. Right-of-way surveys
 - a. Section Corner and Land Ties
 - b. Existing Right of Way Monumentation
 - c. Staking of New Right of Way for Appraisal Purposes
 - d. New Right of Way Monumentation
 - e. A "Results of Survey" map
4. Topographic surveys
5. Roadway drainage surveys
6. Utility locating - set control points with coordinates and elevations at five hundred (500) ft. maximum intervals adjacent to the road and along the utility lines (See Section 430)
7. Centerline staking, centerline of each roadway, as applicable for field review (lath stakes at PC, PI and PT's, at approximate two hundred (200) ft. intervals, and at selected locations if required to define the approximate limits of construction)
8. Centerline and edge elevations of existing pavement at fifty (50) ft. intervals
9. Ties to Arizona State Plane Coordinates
10. Final alignment staking
11. Crossroads tie-ins, turnouts and driveways
12. Above ground utilities

D. The Consultant shall obtain any permits that may be required prior to beginning field work. A traffic control plan may also be required. Preparation of surveys shall conform to applicable documents referenced in Section 200, including (but not necessarily limited to) procedures, record-keeping requirements, equipment use, and safety precautions.

E. Unless otherwise directed by the ADOT Project Manager, the Consultant shall be responsible for selecting a scale that results in good plan clarity. The following scales are suggested:

1. 1" = 500' (Drainage map and R/W key sheet)
2. 1" = 50' (Construction Plans and R/W maps)

EXHIBIT "A"

3. 1" = 20' (Intersections, urban streets, and other items of considerable detail)
- F. The Consultant may be responsible for setting R/W markers. R/W markers shall be set by an Arizona Registered Land Surveyor after acquisition of R/W, or, in some instances, after construction. All R/W drawings and legal instruments shall be approved and sealed by an Arizona Registered Land Surveyor.
- G. The Consultant may be responsible for delineating the R/W so that utility companies may prepare relocation plans. Delineation with strips of plastic flagging attached to lath located at intervals shall provide a clear delineation of the R/W. This work shall be completed immediately prior to the date that utility company personnel are scheduled to conduct a field survey of the project.
- H. Completed surveys and maps shall be recorded in an acceptable format. Upon final approval, the books, maps and CADD files, and other diskettes, shall be submitted to the ADOT project manager.

415 MATERIALS DESIGN

416 Geotechnical Investigation

Geotechnical requirements contained in the Materials Preliminary Engineering and Design (MPE&D) Manual and AASHTO Manual (Reference Section 200) on Subsurface Investigations shall be considered as minimum requirements. These are not intended to preclude innovative methods of Geotechnical investigations and testing that may be proposed by the Consultant. Laboratories selected by the Consultant to perform construction materials testing and analyses must meet the requirements of ADOT's "System for the Evaluation of Testing Laboratories." The Geotechnical Investigation will include appropriate reports, as required, for bridge and retaining/sound barrier wall designs and pavement design. Coordination with ADOT Material Geotechnical Section in developing recommendations is required.

- A. The Consultant shall perform a Geotechnical investigation of the project in accordance with the requirements of ADOT - the MPE&D and Materials Testing Manuals. (Reference Section 200).
- B. The Consultant shall secure an access permit from the appropriate agency, if required, which may at a minimum require the preparation of an equipment access plan, description of equipment types, a plan of the test hole locations, etc. The Consultant shall adhere to all traffic control requirements when taking samples on existing roadways. A traffic control plan may be required.
- C. The results of the Geotechnical investigation shall be contained in the Geotechnical Report and the Bridge Foundation Report, if applicable. The Geotechnical investigation shall include all necessary sampling and laboratory testing and analyses of materials.

Upon approval of the Geotechnical Report, the Consultant may proceed with preparation of the pavement and/or foundation designs and the Materials Design Memorandum.

EXHIBIT "A"

A. The Consultant's Geotechnical investigation shall include, but not be limited to the following as appropriate:

1. Roadway structural section requirements and the availability of structural section materials.
2. Location and depths of topsoil.
3. Soil shrinkage/swell characteristics.
4. Slope stability in embankment/excavation locations.
5. Groundwater pH and resistivity conditions requiring design considerations.
6. Design values for active, at rest, and passive soil pressures.
7. Allowable design loads or pressures for each foundation type.
8. Design methods for shallow and deep foundations.
9. Potential imported borrow site(s) meeting the requirements for the material(s) required (see also Section 417).
10. Design alternatives based on Geotechnical findings.

B. The Consultant shall include in the Special Provisions all notes related to materials found on the final construction plans and not already covered by the Specifications.

417 Earthwork

The Consultant shall attempt to achieve an approximate earthwork balance for the project consistent with good engineering practice based upon the type of material and with consideration given to environmental mitigation measures unless otherwise directed. This may be accomplished by: a) refining roadway geometry (alignment and/or profile) utilizing ADOT Standard Drawings C-02 for slopes; b) adjustment of ditch widths and/or back slope rates to obtain excavation of additional suitable material; c) flattening of embankment slopes or creation of 'false cuts' to dispose of excess material; or combinations of a), b) and c). Adjustments shall not adversely affect water quality and must be coordinated with the project team, including the USFS coordinator, if applicable. Cost of additional right-of-way and environmental concerns must be weighed in determining the most feasible solution for the project.

When a project requires borrow or waste sites, the Consultant shall investigate and recommend the site requirements as outlined under paragraphs A, B, C and/or D below:

A. Current ADOT Borrow Pits

EXHIBIT "A"

The investigation shall begin with a review of current borrow pit information available in the ADOT Material Section. "Current" in this context means that ADOT has or is expected to have licenses for any recommended pits that will not expire until after the estimated construction completion date. Note that ADOT is not necessarily licensed for wasting at all current borrow pits. The results of the investigation shall be included in the Consultant's Geotechnical investigation (see Section 416).

B. Commercial Borrow Pits

Commercial borrow pits are an acceptable alternative to ADOT borrow pits. If recommended, the analysis and test results of the commercial borrow materials shall be included in the Consultant's geotechnical investigation (see Section 416).

C. New Borrow Pits

The licensing of new borrow pits for ADOT use is a lengthy process and should be considered only in the absence of acceptable current ADOT or commercial borrow pits. If the locating, testing and environmental analysis of any new borrow pits is required to complete the design of the project, this work will be added to the contract by contract modification. The analysis and test results shall be contained in a separate report submitted by the Consultant not later than the Stage III submittal.

D. Waste Sites

If the project cannot be balanced and it is determined that a designated waste site is required, the Consultant shall investigate and recommend the nearest site where material can be wasted. (See Section 455)

418 Special Materials

In the case where a special material(s), i.e. a material with characteristics and design values out of the normal range, is required to meet exacting design requirements, the Consultant shall coordinate with the ADOT project manager, ADOT materials section, and/or the Engineering District before changing the design or researching the location of such material(s).

419 Pavement Design

- A. The Consultant shall prepare a pavement design in accordance with the requirements of the ADOT MPE&D Manual.
- B. New pavement design shall conform to the approved AASHTO method. Structural overlay design shall conform to the Structural Overlay Design for Arizona (SODA) method.
- C. The Consultant's proposed pavement design recommendation shall be included in the Pavement Design Summary as described in the ADOT MPE&D Manual, Section 505.00. "Materials Section Design Report Standard Items" shall be used in the preparation of the pavement design report.

EXHIBIT "A"

- D. The Material Design Memorandum shall contain the Consultant's final recommendations for the proposed pavement design, including recommendations for special provisions and construction procedures, as described in the ADOT MPE&D Manual section 505.00, including the use of "Material Section Design Report Standard Items."

420 ENVIRONMENTAL STUDIES

Activities that require soil and/or vegetation disturbance such as Geotechnical investigations, surveys, etc. may not begin until the appropriate environmental clearance (i.e., cultural resources, hazardous materials, or biological evaluations) is issued by ADOT. ADOT Environmental Planning Section, in coordination with the affected federal, state and local agencies and jurisdictions, will issue the required clearance.

430 UTILITIES AND RAILROADS

A. General

All work shall be performed in accordance with U&RR's *Guide for Accommodating Utilities on Highway Right-of-Way*.

B. Definitions

- 1) Utility: A facility which transmits or distributes communication, cable television, electricity, heat, gas, oil, crude products, water, sewer, waste or any other similar commodity which directly or indirectly serves the public. Traffic signals, street lighting, or utility facilities owned by private individuals for use on their own property are not considered "utilities" to be adjusted under this Section.
- 2) Utility Company: A municipality, public service corporation, utility district, etc., which owns and operates utilities that serve the general public. Unless otherwise noted, the procedures to be used with railroad companies will be the same as those used with utility companies.
- 3) Prior Rights Documentation: Documents showing that the utility company's facility predates the acquisition of the property for highway purposes, or that it occupies an easement or other compensable land right. Such documents provide verification that the State is obligated to compensate the utility company for the cost of relocations or adjustments required to accommodate the highway project.
- 4) U&RR: Utility and Railroad Engineering Section, Arizona Department of Transportation.

431 Identification of Utilities

EXHIBIT "A"

- A. The Consultant shall send the Initial and Final DCR to the utility companies at the time of each report submittal. All utility as-built information shall be shown on the construction plans prior to submittal of the Initial Design (30%) plans to the utility companies.
- B. If there are railroads involved in the project area, the Consultant shall request that ADOT U&RR make the initial contact with the railroad company to obtain railroad location and facility maps.
- C. Where elevations are necessary for the determination of utility conflicts, the Consultant shall pothole and provide accurate horizontal and vertical locations of each utility.
- D. The Consultant shall determine any utility conflicts which require relocation and shall advise Anthem Phoenix and ADOT Utilities and Railroad Engineering Section (U&RR).
- E. The Consultant shall arrange and conduct utility coordination meetings to facilitate conflict identification and resolution of conflicts.
- F. The Consultant shall be responsible for reviewing relocation plans produced by utility companies to assure that the proposed utility design does not conflict with the proposed ADOT improvement.
- G. After Anthem Phoenix has obtained utility company Prior Rights documentation, the Consultant shall verify that the documents represent the correct relocation area.
- H. Only Anthem Phoenix will authorize the utility companies to start the design of their relocation facilities, where they have prior rights and desire reimbursement for their design.
- I. The Consultant shall prepare draft utility Special Provisions for submittal to ADOT U&RR for review and comment. These Utility Special Provisions shall include the following:
 - 1. A list of the Utility Companies in the project area, a Contact Person, and telephone number.
 - 2. A Statement that there are no conflicts, or
 - 3. A Statement of Utilities in Conflict.
 - 4. Work to be completed by each utility company during the highway construction.
 - 5. Work to be completed for each utility company by the Highway Contractor.
 - 6. Utility license, permit or right-of-entry required (SRP Exhibit "G").
 - 7. Railroad insurance required and contractor relations with railroad ("C Documents").

432 Utility Relocation Plans

- A. The Consultant shall indicate all existing utilities on the Final DCR and Initial Design (30%) plans.
- B. The Consultant shall prepare reproducible plans showing the locations of all existing public and private utility lines and indicate the potential areas of conflict between the utility lines and the roadway improvements.
- C. The Consultant shall furnish copies of the 30%, 60%, and 95% submittal plans to each Utility Company which has facilities within the project area. The size of the plans (1/2 or full) shall be as requested by the utility companies. The Consultant shall send the plans to the utilities, receive responses and provide copies of all correspondence to and from the utility companies to ADOT U&RR.
- D. The Consultant shall include existing utilities, and planned utility relocations, on the Final I (95%) plans.

433 Utility Relocations

Where a utility relocation may be required:

- A. The Consultant shall identify any possible alternatives to minimize the utility line conflict.
- B. For Public Utility Companies, Municipal, and Railroad facility relocation, Anthem Phoenix will determine by the examination of easements, permits and/or other evidence the utility's rights to occupy the area of conflict and who will bear the burden of relocation. Anthem Phoenix will notify the company to relocate it's lines at it's own expense, or obtain any necessary cost estimates and prepare any necessary agreements to cover the utility relocation work when it is to be at the expense of Anthem Phoenix.

434 Utility Clearance

The Consultant shall submit a draft of a public utility clearance letter indicating the time that all public and municipal utility conflicts will have been resolved and that the project may be cleared for bid advertisement with respect to utilities. This letter shall be submitted to ADOT and Anthem Phoenix for review and approval. The Consultant shall also prepare and submit the final Utility Clearance Letter. Utility clearance for private utilities will be included within the normal clearance letter submitted through ADOT Right-of-Way Section.

435 PUBLIC INFORMATION MEETINGS AND PUBLIC HEARINGS

The Consultant shall provide staff and/or materials for public information meetings as outlined below if they are found to be necessary. ADOT will be responsible for advertisement and will

EXHIBIT "A"

make arrangements for the public information meeting. ADOT will provide a moderator and any liability insurance required.

A. Public Information Meetings

The Consultant and staff shall be available, at five (5) workdays notice, to attend meetings or make a presentation at the request of ADOT. The purpose of these meetings shall be to inform the public of and answer questions regarding the scope, details, and anticipated schedule of the project. Such meetings and presentations may be held at any hours between 8:00 AM and 12:00 midnight on any day of the week except legal holidays. The Consultant will be responsible, as applicable, for the preparation of graphics, hand-out materials, minutes of the meetings, audiovisual displays and similar material for such meetings. All such materials shall prominently identify ADOT. The Consultant shall expect to work with the team to finalize the agenda for any public meetings.

B. Public Information News Releases

The Consultant and staff shall be available, with one workday of notice, to support the ADOT preparation of newspaper articles, newsletters, flyers, radio and TV announcements, etc. and to assist ADOT with responses to verbal and written questions from the media and the general public. The purpose of these news releases shall be to provide the media and public with the latest information on the project scope, details and schedule of the project.

440 ROADWAY DESIGN

The Consultant shall prepare design plans on ADOT standard sheets and construction documents for the roadway improvements including but not limited to the following:

- A. Face sheet and List of Standard Drawings (ADOT will provide these sheets for incorporation into the design plans)
- B. General notes
- C. Design sheet and Index
- D. Typical roadway and detour sections
- E. Roadway and detour plans and profiles
- F. Intersection plans and profiles, including staking plans
- G. Cross road and frontage road plans and profiles
- H. Retaining wall and sound barrier wall plans and profiles
- I. Earthwork quantities

EXHIBIT "A"

- J. Details
- K. Special provisions
- L. Cross sections
- M. Arizona State Plane Coordinate Ties

- NOTES:
1. Standard plan sheet size is 22" x 36" with borders as specified by ADOT.
 2. Cross sections will not be part of the plans, but will be reviewed and made available to contractors bidding on this project. Therefore, the cross sections must be suitable for reproduction. Horizontal and vertical scales shall be the same. Each cross section shall show the plotted roadway template superimposed on the plotted natural terrain. Cross sections shall be drawn on vellum grid paper. Submittals may be on standard 24" x 36" sheets. Cross sections shall normally be prepared at one hundred (100) foot intervals, as a minimum, with additional sections at breaks in the terrain unless otherwise directed by the ADOT Project Manager. (Cross sections shall be included in all submittals to utility companies and as requested by other members of the team).
 3. All designs shall conform with the latest Americans with Disabilities Act Accessibility Guidelines Title I and II.
 4. The Consultant shall provide the various ADOT Technical Sections involved in the design of this project with roadway base sheets as required.

445 BRIDGE DESIGN AND BRIDGE DRAINAGE DESIGN

The Consultant shall prepare designs and construction documents for structural design including, but not necessarily limited to:

- A. General plan
- B. General notes and quantities
- C. Foundation sheets
- D. Abutment details
- E. Pier details
- F. Superstructure sheets
- G. Screed elevations
- H. Special details (if applicable)

EXHIBIT "A"

- I. Stage construction sequencing details (if applicable)
- J. Pile records (if applicable)
- K. Special provisions and cost estimates

NOTE: All design plan sheets shall be trimmed to 22" x 36".

446 Bridge Structure Selection Report

During Stage II, prior to preparation of final designs and construction documents, the Consultant shall submit a Bridge Selection Report for the new bridge and/or for renovation of the existing bridge. The report shall be prepared in accordance with the ADOT Bridge Designing and Detailing manual. ADOT must approve the report prior to the Consultant beginning the final design of each bridge.

The final structural plans shall reflect the most current design standards, specifications and ADOT policy. Therefore, the Consultant shall be responsible for studying revisions to the plans made during the development of the project and ascertaining how the structural design will be affected. The Consultant shall work with the ADOT Project Manager, who will give the final authorization, in determining the propriety of modifying the design to accommodate the revised standards, specifications and ADOT policy. The Consultant will be compensated by Contract Modification for any significant redesign work resulting from this requirement. A final review of the applicable standards and specifications will be conducted by the Consultant at Stage IV.

450 ROADWAY DRAINAGE DESIGN

451 Drainage Reports

- A. The Consultant shall be responsible for preparing the Initial and Final Drainage Reports for on-site drainage, off-site drainage and pump station analysis.
- B. The Consultant shall conduct hydrologic and hydraulic analysis and/or obtain available public information to identify flood plains and probable flood plain impacts. The Consultant shall determine existing and developed conditions, discharges for all pertinent drainage systems, and existing flow patterns; assess possible drainage problems, identify possible solutions, and propose tentative hydraulic improvements.

Part A of the Initial Drainage Report, hydrologic information, may be submitted and informally discussed with the ADOT project manager prior to detailed hydraulic analysis in order to facilitate proper progress of the study. The Drainage Report may require additional data as it relates to NPDES, e.g., flow analysis in ditches, intersecting drainages, etc., in order to adequately design temporary erosion control structures.

Following Part A, Hydrologic Information Review, the Consultant shall conduct hydraulic analyses of proposed flood plain modifications, hydraulic structures, and drainage-related improvements which are proposed. The Consultant will then prepare

EXHIBIT "A"

an Initial Drainage Report consisting of both Part A, Hydrologic and Part B, Hydraulic studies and their supporting documentation.

- C. The Consultant shall prepare a Final Drainage Report, pursuant to comments and approval of the Initial Drainage Report, based on refined hydraulic structure selections and sizing. The report shall provide analysis of changes to existing flow patterns and the design of channels, culverts and other drainage structures.

The Final Drainage Report shall be submitted concurrent with the Stage III Design submittal unless other arrangements are made with the ADOT Project Manager.

452 Drainage Designs

The Consultant shall prepare designs and construction documents for drainage features including, but not limited to:

- A. Drainage culverts and underpass structures for cattle/game crossings
- B. Catch basins, manholes and connector pipes
- C. Drainage pipe and concrete box culvert summary sheets
- D. Drainage details
- E. Drainage culvert profiles
- F. Retention/detention basins

453 Section 404 Permit

ADOT with the Consultant, as appropriate, in consultation with the Corps of Engineers, will determine the need for a Section 404 permit. If a permit is required, ADOT will process the permit application. The Consultant shall be responsible for providing ADOT with technical data for the roadway cross drainage-ways (i.e. typical sections, location and approximate areas of cut and fill within each drainage way) to support the determination of need for a permit and/or the permit application.

454 Evaluation of Alternative Pipe Culvert Materials

The Consultant shall be responsible for evaluating all forms of ADOT approved pipe culverts. Evaluation documentation shall be included with the design calculations per Section 1040. Valid designs shall be indicated on the new pipe summary sheet.

455 LANDSCAPE ARCHITECTURAL DESIGN

EXHIBIT "A"

- A. The Consultant shall be responsible for completing all temporary and permanent erosion control plans, specifications and estimates in accordance with the ADOT Erosion and Pollution Control Manual for Highway Design and Construction and recommendations from Roadside Development Section.
- B. The Consultant shall be responsible for completing necessary plans, specifications and estimates required to implement the necessary environmental mitigation as required by the Final Environmental Assessment. This will include but not be limited to the following:
 - 1. Prepare a resource protection plan that will preserve and protect existing vegetation on or adjacent to the work site that does not unreasonably interfere with work requirements, identify sensitive areas within the project limits to include riparian areas and key visual areas such as rock outcrops and vegetation that are to be retained, identify potential Contractor staging sites, equipment yards, batch plants, waste earthwork disposal sites, etc.
 - 2. Prepare site-specific reclamation and re-vegetation plans and seeding specifications in coordination with Roadside Development Section.
 - 3. If the project earthwork cannot be balanced and waste site(s) are proposed on Forest lands, the Consultant shall coordinate with the National Forest on possible waste sites and recommend treatments for disposal of the materials. If waste sites are approved on Forest lands, the Consultant shall develop complete contour grading plans that will provide variable slopes with smooth and rounded transitions and will preserve existing vegetation, land forms and drainage patterns.
- C. The Consultant shall be responsible for the preparation of the Storm Water Pollution Prevention Plan (SWPPP) to meet the requirements of Section 402 of the Clean Water Act (NPDES). This shall include the preparation of the SWPPP Standard Sheet and the preparation of erosion control plans for the project in accordance with the ADOT Erosion and Pollution Control Manual for Highway Design and Construction and shall follow the recommendations from ADOT Roadside Development Section. The erosion control plan shall show the location of the temporary erosion and sediment control features necessary to prevent storm water pollution and shall include erosion control summary sheets, erosion control details, erosion control plan sheets, specifications and estimates. The permanent erosion control features shall be shown on the roadway plans and as appropriate, specified in the special provisions.

460 TRAFFIC ENGINEERING DESIGN

461 Traffic Data

The Consultant shall provide any necessary traffic data that are not provided by ADOT (Section 740) including:

- A. Twenty-four (24) hour traffic counts

B. Turning movements at intersections

462 Traffic Control Plans

- A. The Consultant shall prepare construction sequencing plans that will detail construction phasing and patterns for traffic flow, maintain access to businesses, schools, residences, etc., and provide a minimum of one lane of traffic in each direction during construction.
- B. The Consultant shall determine the need for Traffic Control Plans and prepare same for each phase of construction detailing construction phasing, patterns for traffic flow, access to local businesses and residences, any temporary signing, temporary pavement marking, temporary concrete barrier, flashing arrow panels, flagging operations, etc. Summary quantities shall be indicated on the Traffic Control Plans and included in the estimate for traffic control.

463 Roadway Lighting and Intersection Signalization

464 Signing Plans

The consultant shall prepare designs for signing that are consistent with current signing practice and in conformance with the Manual on Uniform Traffic Control Devices (MUTCD), the Traffic Engineering Design Manual, the Manual of Approved Signs (MOAS), and Traffic Group's Sign Sheeting Guidelines, dated May 31, 1996. Freeway signing within the MAG system shall also conform to the MAG Network Signing Plan, dated January 1992.

A signing summary shall be provided in the project plans. Non-standard signs shall be detailed on the project plans following the formats given in the above referenced documents. The signing summary, a detailed estimate of costs, and any special provisions shall be included with each submittal beginning with Stage II.

465 Pavement Marking Plans

The Consultant shall prepare permanent pavement marking designs for the roadways within the project limits to show center, edge and lane line striping, stop lines, crosswalks, arrows, legends, and symbols, raised or recessed pavement markers, object markers, delineation or other markings as may be consistent with the needs of the project and in conformance to the requirements of the MUTCD, the Traffic Design Manual, and the Standard Drawings. The consultant shall confer with the district representative and Traffic Group to determine which types of marking or delineation materials are appropriate for the project. The summary of quantities, a detailed estimate of costs, and any special provisions shall be included with each submittal beginning with Stage II.

467 Composite Traffic Control Device Plan

The Consultant shall provide a composite plan indicating signing and pavement markings to facilitate proper review of the control and devices that will be visible to motorists.

470 RIGHT-OF-WAY

471 Right-of-Way Requirements Determination

The Consultant shall determine the requirements for new Right-of-Way (R/W) and easements, including, but not limited to, new roadway R/W, slope easements, drainage easements, temporary construction easements, waste site R/W, access control R/W, borrow pit R/W and haul road R/W.

The Consultant shall submit to ADOT, in writing, the preliminary R/W requirements on or before the Stage II design submittal and the final R/W requirements on or before the Stage III design submittal. No revisions or additions to the R/W requirements will be allowed after the Stage III submittal without the approval of the ADOT Project Manager.

The new R/W requirements shall be submitted in triplicate to ADOT for review and shall include the following as a minimum:

- A. A letter indicating the project name, contract number, project location, originator of report (Firm's Name), submittal date and submittal type (Stage II or III).
- B. A plan of sufficient scale and detail to show the existing and proposed roadway R/W and proposed easements.
- C. Type of acquisition required:

At the Stage II submittal, the new requirements may be estimates of the final R/W with enough definition to identify all ownerships that will be affected. The preliminary requirements should be large enough to cover all possible R/W needs.

At the Stage III submittal, the new requirements shall be accurately defined with widths, lengths, stations, offsets, etc.

472 Right-of-Way Acquisition

If new R/W is required for the project, ADOT will acquire all necessary R/W and easements. Based on the requirements provided by the Consultant, ADOT will:

- A. Prepare final R/W plans and associated documents necessary for R/W acquisition (Final plans may be prepared by others).
- B. Acquire necessary R/W including easements, material sites and waste sites.
- C. Obtain the necessary authority to proceed with the various phases of property acquisition.
- D. Prepare the necessary data for Transportation Board resolutions and project clearance letters.

473 Temporary Entry Documents

EXHIBIT "A"

A temporary entry document for entry to each parcel for any or all of the following activities is required: Geotechnical investigations and design or construction survey work. The Consultant shall notify ADOT of the need for any temporary entry documents no later than thirty (30) days after the notice to proceed. ADOT will obtain the appropriate owner's signature. The Consultant may not enter any such property prior to approval of the temporary entry documents by ADOT.

480 COST ESTIMATES

The Consultant shall prepare combined and detailed estimates (cost estimates) in the format recommended by Contracts and Specifications Section. The cost estimate shall include a recapitulation sheet concurrent with each review submittal. Computer generated estimate forms may be used, provided the format is approved by the Contracts and Specifications Section. At the Stage II review, the Consultant shall prepare a bidding schedule and concurrently with each review submittal thereafter. ADOT will provide the necessary format.

The budgeted cost for this project is indicated in Section 140 of this Scope of Work. The Consultant shall immediately advise ADOT, in writing, if there is any reason to believe the project cannot be constructed within the allocated budget. The Consultant shall identify options to maintain the project within budget, including shortening the project, revising criteria, or phasing changes.

485 SPECIFICATIONS

The Consultant shall be responsible for identifying critical elements of construction, including, but not limited to, construction limits, access requirements, potential night construction, coordination with affected local agencies (police, fire, USFS, etc.), traffic lanes open, scheduling of work time (bar chart format illustrating estimated construction time), utility trench close ups, incentives and liquidated damages, State-furnished materials, critical materials requiring pre-bid purchase, and limitations specifically addressed in the environmental, right-of-way, and utility clearances.

490 SPECIAL PROVISIONS

The Consultant shall prepare Special Provisions for items, details, and procedures not adequately covered by ADOT's Standard Specifications and Stored Specifications. Unusual requirements necessary for obtaining permits for hauling materials shall also be included. Special Provisions shall be submitted at the Stage III and Stage IV project reviews. Final Special Provisions shall be sealed by the Engineer in responsible charge. The Consultant shall be responsible for incorporating any specifications provided by ADOT technical sections into the draft and final Special Provisions. ADOT shall review all submittals of Special Provisions and the Consultant will prepare the final Special Provisions.

495 CONTRACTS AND SPECIFICATIONS PROCESS

The Consultant shall, under the direction of ADOT, support the Contracts and Specifications process after completion of the Final Submittal stage leading to the complete bid documents as follows:

- A. Promptly answer questions relative to the plans, quantities, and Special Provisions.
- B. Make any necessary corrections to the plans, typical sections, Special Provisions, quantities, notes, etc. as required.
- C. Prepare any addenda required to clarify the work included in the contract documents as requested by the Contracts & Specifications section. The addenda shall be prepared immediately upon request. Addenda may be required based on the project inspection with the assigned ADOT Resident Engineer, questions developed in the pre-bid conference, or conditions discovered by bidders during the bid period.
- D. The Consultant shall, prior to the pre-bid conference be prepared to walk the project with the assigned ADOT Resident Engineer to discuss the plans and details.
- E. The Consultant shall be prepared to attend the pre-bid conference, if one is scheduled, and present an appropriately-sized display showing the project layout, proposed traffic control and construction phasing, and shall be prepared to discuss other constraints so that the potential bidders will be better able to relate to the intent of the construction of the project. The Consultant shall respond to questions related to the plans, details and special provisions.
- F. The Consultant shall be prepared to assist in the analysis of bids, including: determination of reasonableness and justification of cost variances, analysis of original cost estimate compared to contractor bid costs.

SECTION 600 - POST-DESIGN SERVICES

ADOT will coordinate all post-design services and will act as the principal initial contact for post-design questions. The Consultant shall be responsible for the post-design services described below. Additional work required will be added to the contract by contract modification.

- A. The Consultant shall be available, within twenty-four (24) hours of notification, to respond to questions in the field that may arise relative to the plans, details, or special provisions during construction.
- B. The Consultant shall review and approve shop drawings, erection procedure plans, and form work details, review proposals for substitutions or "approved alternates," assist the resident engineer to develop change orders, and provide other engineering services required to facilitate construction of the project.
- C. The Consultant shall appoint a responsible member of the firm to be the contact person for all post-design services. The person shall be continually available during the course of construction for review and updating of design plans.
- D. The Consultant shall make every reasonable effort to process any material presented for review in a prompt manner.
- E. The Consultant may be required to attend the Pre-Construction Partnering Workshop.

SECTION 700 - MATERIALS FURNISHED BY ANTHEM PHOENIX

710 Surveys and Mapping (Provided Stanley Consultants & Cooper Aerial)

Anthem Phoenix will provide the following materials, as available:

- A. Horizontal and vertical control for existing alignments
- B. Descriptions and values for Geodetic control
- C. Field Survey
 - 1. Planimetric maps
 - 2. Topographic maps
 - 3. Digital Terrain Model
 - 4. Profile maps
- D. Control for aerial maps
- E. Photogrammetric Mapping (Contour Interval = 2 ft.)
 - 1. 1" = 50' photogrammetric mapping
 - 2. 1" = 100' photogrammetric mapping
 - 3. 1" = 50' Digital Terrain Model
 - 4. 1" = 100' Digital Terrain Model
- F. Photo mosaic
- G. Aerial photos
- H. ADOT State Plane Coordinate Grid Adjustment Factor(s)

720 Materials Investigation – Not Applicable

730 Record Documents

The Consultant will obtain the following ADOT drawings:

- A. Available "as built" plans, of existing conditions
- B. Available right-of-way plans of existing conditions

740 Traffic Data – Not Applicable

750 Environmental Studies

Anthem Phoenix will provide, at the Consultant's request, any available environmental data prepared for the Anthem Community pertaining to environmental studies.

760 Base Sheets – Not Applicable

770 Anthem Community Design Information

Anthem Phoenix will provide applicable design studies and/or design plans which have been developed for the Anthem Community. This information shall include, but not be limited to, the following:

- A. Master Drainage Report for the Anthem Community.
- B. Section 404 Permit for the Anthem Community.
- C. Construction plans for the Lake Pleasant water supply pipeline.
- D. Roadway geometric design data for the Roadway D and Roadway C.
- E. Current Map of Dedication for Daisy Mountain Road and Roadway D.
- F. Current platting information for property adjoining Daisy Mountain Road.
- G. Existing utility information for utility lines within the project area.
- H. Construction plans for the Interstate 17 utility undercrossings (2).

SECTION 1000 - CONTRACT ADMINISTRATION

1005 ANTHEM PHOENIX

The Anthem Phoenix representative shall:

- A. Conduct ongoing reviews of the Consultant's progress in performing the work and furnish technical documents in a timely manner.
- B. Direct design consensus status and team building meetings with all appropriate partners at the start of the project and on a monthly basis during the project development period.
- C. Review the Consultant's billings.
- D. Review and evaluate the Consultant's requests for extension of time and supplemental agreements.
- E. Review all correspondence with ADOT and other public agencies prior to the Consultant's mailing of sensitive correspondence.
- F. Coordinate the distribution of public information.

1010 ARIZONA DEPARTMENT OF TRANSPORTATION

ADOT's Corridor Engineer shall:

- A. Provide direct coordination with ADOT Sections and Services for activities involving the project coordination and approvals.
- B. Attend and provide agency input and agency design consensus status and team building meetings with all appropriate partners at the start of the project and on a monthly basis during the project development period.
- C. Review the correspondence with public agencies prior to the Consultant's mailing of any correspondence.
- D. Provide input for coordination of the distribution of public information.
- E. Provide a focal-point contact for all ADOT coordination, questions, requests, submittals and approvals.
- F. Coordinate project scheduling with the Consultant, ADOT sections, and ADOT Program and Project Management Section.

1020 CONSULTANT

The Consultant shall:

- A. Establish, furnish and maintain suitable office facilities to serve as the project office for the duration of the project in the location specified in the Consultant's technical proposal.
- B. Maintain an adequate staff of qualified support personnel to perform the work necessary to complete the project.
- C. Establish internal accounting methods and procedures for documenting and monitoring project costs.
- D. Establish and maintain contract administration procedures, which will include supplemental agreements, time extensions and subcontracts.
- E. Include the complete TRACS number and project name on all correspondence related to this contract.
- F. Participate in design consensus, status and team building meetings with all appropriate partners at the start, and on a monthly basis during the project development period and as needed to maintain the design schedule. If requested by the ADOT project manager, the Consultant shall act as the lead.

The Consultant is responsible for the accuracy and completeness of contract documents and related design prepared under this project. The plans will be reviewed by the project team, including representatives of ADOT technical sections, for conformity with ADOT procedures and the terms of the contract. **Review by ADOT does not include detailed review or checking of the design of major components and related details, or the accuracy with which such designs are depicted on the plans.**

1021 Project Control

The Consultant shall provide data, in the format specified by Anthem Phoenix, upon request, to monitor costs and manpower and to report progress.

The project control system may include features to:

- A. Determine and highlight critical path work from initial plans as work progresses.
- B. Identify progress against schedule for each identified work item.
- C. Forecast completion dates from current progress.
- D. Highlight rescheduled work in any area which is out of the required sequence.
- E. Determine any physical area that requires more resources than originally allocated.
- F. Forecast future conflicts in any area.

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- G. Provide estimates of time, manpower, and dollars required at the lowest work element tracked, based upon current expenditures versus schedule.
- H. Provide the capability of random inquiry concerning the status of any work element in terms of schedule, manpower, and dollars.

1022 Subcontract Services

Due to the nature and scope of the required services, it may be desirable for the Consultant to subcontract portions of the work. However, the subcontracting firms must be approved in writing prior to initiation of any work. The volume of work performed by the subcontractors shall not exceed 49 percent (49%) of the total contract value.

1023 Project Related Correspondence

The Consultant shall furnish written documentation of communications between the Consultant and any party pertaining specifically to this project to Anthem Phoenix and ADOT for their records within one week of the communication. The Consultant is responsible for recording and distributing to the participants the minutes of all meetings pertaining to this project within one (1) week of the meeting.

1024 Quality Control

The Consultant is responsible for the accuracy and completeness of the plans and related design prepared under this contract and shall check all such material accordingly. The Consultant shall have a quality control plan in effect during the entire time work is being performed under this contract. The plan shall establish a process whereby plans, calculations and documents submitted for review shall be clearly marked as being fully checked by a qualified individual other than the originator. Non-compliance will be sufficient cause for rejection of submittal. Periodic Quality Control audits may be performed by the ADOT project manager.

The Consultant shall submit the quality control plan to Anthem Phoenix for approval within fifteen (15) working days of receipt of written Notice to Proceed. The plan shall comply with the requirements of Section 1025. The plan shall address as a minimum: checking procedures, training of employees in quality requirements, methods of monitoring and documenting quality control activities.

1025 Quality Control Plan Requirements

- A. Identification of key personnel and definition of specific responsibilities:

The plan will identify, by name, the specific project personnel and their individual responsibilities relative to the project and the Quality Control process.

- B. Technical review process:

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Technical review shall be distinguished from checking. Checking is for verification of the accuracy of the documents; technical review is for the verification of the overall design concept of the project. As a minimum, technical review will do the following:

1. Determine the adequacy of the design process to achieve the desired goals.
2. Evaluate the general selection and sizing of materials and equipment.
3. Determine if all viable alternatives have been considered.
4. Determine the practicality of the design concept.
5. Determine if legal and physical restraints were considered.
6. Determine if the design theory, concepts, and project layout are logical.
7. Determine applicability of computer programs used.
8. Determine if the technical specifications are sufficiently comprehensive.
9. Determine the construct ability of the selected design.

C. Checking procedures:

The checking process should assure that all documents produced, including, but not limited to, plans, reports, calculations, specifications, special provisions, estimates, and schedules, are thoroughly checked by an individual equally competent to the originator of the document to verify accuracy. The process will address resolution of conflict and assure agreement of computer programs and procedures for checking computer input and output. Checking shall not only confirm the accuracy of calculations, but shall include a thorough review of the proper use of Standard Drawings, Drafting Guide, Project Design Guidelines, and other manuals and documents referenced under Section 200.

D. Program to train employees in the quality control requirements:

The training program should provide an opportunity for all project staff to become familiar with the design and the quality control process that will be required on this project. Particular attention should be directed to defining specific individual responsibilities and assuring their understanding.

E. Process to monitor and document quality control activities:

A method for monitoring and documenting the required processes is essential to achieve desired results. This process should easily and quickly verify the entire Quality Control process. A checklist should be developed for quick reference and periodic review by the Project Principal, ADOT and Anthem Phoenix.

1026 Consultant Personnel

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The Consultant's work shall be performed and/or directed by the key personnel identified in the technical/fee proposal presentations by the Consultants. Any changes in the indicated key personnel or the Consultant's officer-in-charge of the work, as identified in the Consultant's proposal, shall be subject to review and approval by ADOT and Anthem Phoenix.

1027 Site Visit

The Consultant shall make arrangements to visit to the project site, with agency and Anthem Phoenix representatives as appropriate (ADOT, FHWA, National Forest and other interested persons), at least two (2) weeks prior to the visit. The visit will be held within fifteen (15) working days of the receipt of written Notice to Proceed, or as otherwise instructed by the ADOT Corridor Engineer and Anthem Phoenix Project Manager. Within seven (7) calendar days of the site visit, the Consultant shall issue to Anthem Phoenix and ADOT a brief written report including observations, discussions, and any questions pertaining to the scope or level of effort of the project. The purpose of this visit is to acquaint key personnel with the details and features of the project to facilitate the design process.

1030 ACCEPTABILITY OF THE WORK

The plans, design, requested calculations, reports and other documents furnished under this Scope of Work shall conform to "standards-of-the industry" quality. Criteria for acceptance shall be a product of neat appearance, well organized, accurate and complete, technically and grammatically correct, checked in accordance with the approved Quality Control program, and with the designer, maker and checker identified.

1040 DESIGN DOCUMENTATION

- A. If requested, the Consultant shall submit any design notes, sketches, worksheets, and computations to document the design conclusions reached during the development of the contract documents to ADOT for review.
- B. Structural calculations will only be submitted when requested by the Bridge Group and for specific elements.
- C. At the project completion (immediately prior to the bid advertisement), a final set of project documentation sheets, sealed by a Professional Engineer, registered in the State of Arizona, shall be submitted with the record set of plans and tracings.
- D. Project Documentation shall include, but is not necessarily limited to, the following data:
 - 1. Design criteria used for the project
 - 2. Right-of-way calculations (including easements)
 - 3. Geotechnical reports for the pavement and/or bridge design

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4. Documentation of decisions reached resulting from meetings, telephone conversations or site visits.
5. Drainage reports

E. Computer-Aided Drafting and Design (CADD)

Drawings shall conform to the applicable ADOT drafting and CADD standards.

The CADD software to be used shall be Intergraph's, or certified Inter Graph products running on any computer platform that is supported by Inter Graph (PC, Sun, Mac, Inter Graph and Vax). The use of non-Inter Graph software/file formats and subsequent translation of the graphic files to the ISFF (Inter Graph Standard File Format) is not acceptable. Graphic files shall contain data in vector format only - raster data will not be acceptable for this project.

At the completion of the project, all of the pertinent CADD files (graphic, ascii, dtm, etcetera) shall be delivered to ADOT on DOS format 3.5" floppies. Alternate delivery media must be approved by ADOT Computer Aided Engineering Section. All media containing final project data should be packaged separately, suitably labeled and delivered to the Computer Aided Engineering Section at mail drop 622E.

The final hard copy deliverables for this project shall be as outlined in other sections of this contract.

1050 VALUE ANALYSIS – Not Applicable

1060 REVIEWS AND SUBMITTALS

- A. Review and coordination of the Consultant's work by Anthem Phoenix and ADOT will continue through the project development process. The Consultant may continue the design work while design submittals are being reviewed by ADOT. Doing so however in no way relieves the Consultant of the responsibility to incorporate review comments into the design, nor does it entitle the Consultant to any additional design fees as a result of making changes due to review comments.
- B. Copies of review submittals and finalized documents shall be distributed by the Consultant in accordance with the Distribution List maintained by the Valley Project Management Section (see Appendix C) or as per the ADOT project manager's instructions. The appropriate name for each position may be obtained from the ADOT project manager upon request one week prior to any submittal deadline. All deliveries shall be by hand or overnight courier. All plans shall be half-size black and white sheets.

1061 Alternative Selection Report

The Consultant will present proposed alternative alignments, typical sections, and other required information within the project area for review and approval by ADOT. The

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Consultant's recommendations will be supported by the Consultant's own research, results of the Design Scoping Session, results of the Site Visit, initial and final AASHTO analysis, drainage study, Environmental Overview, utility and right-of-way data, and other pertinent information.

A brief report with sufficient depth to explain the design concepts to be carried forward will be distributed to the project stakeholders. A meeting will be held to present the results of this preliminary analysis. The discussion, comments and consensus from this meeting will be incorporated as the Consultant continues development. Additional written comments will be accepted after the meeting.

At this stage of development, a Public Information Meeting will be held in the vicinity of the project to solicit comment from the public and interested groups.

1062 Initial Design Concept Report

The alternatives developed and approved for further study in the DCR will be expanded upon in further detail. This analysis will incorporate comments from the informal review of the Alternatives Selection Report. Information from the Stage One drainage section shall be used in the further development of the design concepts. The report shall be prepared in accordance with Policy and Implementation Memorandum 89-5 and shall discuss and evaluate all parts of the study including, but not limited to, environmental impacts, drainage, roadway geometrics, bridge structure issues and right-of-way. Coordination with adjacent landowners and local jurisdictions shall be an important part of fulfilling the requirements of this study. Pre-review of the document by Anthem Phoenix and ADOT will include a cooperative evaluation of the concepts with the Consultant resulting in approval of the Initial Design Concept Report for distribution.

The Consultant shall submit the Initial Design Concept Report. For distribution, see Section 1060. The Consultant shall prepare a summary of comments addressing all comments received as a result of the review. Comment resolutions will be reviewed and approved by ADOT prior to distribution. If necessary, a consensus meeting will be held to resolve outstanding issues.

1063 Final Design Concept Report

The Consultant shall submit the Final Design Concept Report, sealed by an Arizona Registered Professional Engineer, for completion of this project.

These reports shall include refinements of the materials developed since the Initial Design Concept Report and modifications resulting from review comments and public comment.

1064 Environmental Reports – To Be Provided by ADOT

Upon completion of the environmental analysis, the Consultant shall prepare a preliminary copy of the complete "Draft" environmental document. Following review, the Consultant shall meet with the ADOT Environmental Planner, ADOT Corridor Engineer and Anthem Phoenix Project Manager to program appropriate action regarding review comments. The Consultant shall then submit a reviewed preliminary draft environmental document for

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review. Upon receipt of comments, the Consultant shall prepare and submit the completed draft environmental document for approval and signature.

Upon completion of the Public Hearing process, the Consultant shall prepare the "preliminary final" environmental document, incorporating a description of the public involvement process and responses to all comments received for submittal for review. The final environmental document shall be prepared in addendum format. The Consultant shall re-review the preliminary final environmental document and submit it for review. Requested revisions shall be made by the Consultant and the final environmental document will be submitted for approval.

1065 Final Design Submittals

Submittals for review shall be made when the studies and/or plans have been developed to the following levels of completion:

- A. Initial (30%) Design – Stage II Submittal
- B. Preliminary (60%) Design – Stage III Submittal
- C. Final I (95%) Design – Stage IV Submittal
- D. Final II (100%) Design – Stage V Submittal

Copies of the review submittals and finalized documents shall be distributed by the Consultant in accordance with the Distribution List include in Appendix D, or per the requirements of the ADOT Corridor Engineer. The appropriate name for each position may be obtained from the ADOT Corridor Engineer upon request one (1) week prior to any submittal deadline. All deliveries shall be by hand or overnight courier. All plans shall be half size black and white sheets.

1066 Stage II Design Submittal

At the completion of this phase, design and plan development should be approximately thirty percent (30%) complete. The following material shall be developed and submitted for review:

- A. Typical roadway and detour sections.
- B. Initial roadway geometry and preliminary roadway and detour plan and profile sheets.
- C. Location of existing utilities and identification of initial utility conflicts.
- D. Initial R/W and easement requirements.
- E. Initial roadway drainage plans.
- F. Initial Drainage Report.

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- G. If required, draft applications for environmental permits including preliminary input for Section 404 permit.
- H. Any significant change in engineering data supporting previous environmental decisions or applications.
- I. Preliminary summary of required environmental mitigation measures.
- J. Initial development of intersection plans including basic geometry and channelization.
- K. Initial layouts for proposed retaining and sound barrier walls.
- L. Initial construction sequence plans.
- M. Preliminary Geotechnical Report.
- N. Preliminary Bridge Selection Report.
- O. Final survey information.
- P. Initial quantities and cost estimate.
- Q. Initial roadway cross sections at one hundred (100) ft. intervals, as a minimum, with additional sections at breaks in the terrain.
- R. Initial summary of earthwork quantities.

The Geotechnical report shall be submitted to ADOT for review and approval a minimum of fifteen (15) calendar days prior to the Stage II design submittal.

1067 Stage III Design Submittal

At the completion of the phase, the design and plan development should be approximately sixty percent (60%) complete. The following material shall be developed and submitted for review:

- A. Design Sheet(s) with Index and General Notes.
- B. Summary Sheets.
- C. Final typical roadway and detour sections.
- D. Preliminary roadway and detour plan and profile sheets.
- E. Identification of final utility conflicts and preliminary plans of utility installations, and/or re-locations to be included in project construction.
- F. Final R/W and easement requirements.
- G. Preliminary roadway drainage plans and details.

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- H. Pre-Final Drainage Report.
- I. Completed applications for environmental permits including final input for Section 404 permit.
- J. Any significant change in engineering data supporting previous environmental decisions or applications.
- K. Final summary of required environmental mitigation measures.
- L. Preliminary intersection plan sheets.
- M. Final construction sequencing plans.
- N. Preliminary retaining and sound barrier wall plans and details.
- O. Preliminary landscape, irrigation plans, details and proposed sources of water and power.
- P. Preliminary Bridge Structure Plans.
- Q. Preliminary Traffic Control Plans.
- R. Preliminary Pavement Marking and Signing Plans.
- S. Preliminary Traffic Signal Plans.
- T. Preliminary Lightning Plans.
- U. Preliminary erosion control plans, summaries and details.
- V. Preliminary special provisions including ADOT Stored Specifications.
- W. Preliminary quantities, cost estimate and bidding schedule.
- X. Preliminary construction schedule in bar chart format.
- Y. Preliminary roadway cross-sections.
- Z. Summary of earthwork quantities.

An office review and field review will be held following submittal of the Stage III plans to review the proposed roadway alignments and bridge site. See Section 410 of this Scope of Work for field review staking requirements.

1068 Stage IV Submittal

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At the completion of this phase, design and contract document development shall be approximately ninety-five (95%) percent complete. The following material shall be completed, checked and submitted for review:

- A. Design sheet(s) with index and general notes.
- B. Summary Sheets.
- C. Special Details.
- D. Typical roadway and detour sections.
- E. Roadway and detour plan and profile sheets.
- F. Drainage plans and details.
- G. Intersection plans and details.
- H. Construction sequencing and traffic control plans.
- I. Pump station plans.
- J. Retaining wall and sound barrier wall design plans.
- K. Signing and pavement marking plans.
- L. Traffic signal and roadway lighting plans.
- M. Landscape irrigation plans and details.
- N. Bridge structure plans.
- O. Utility installation/relocation plans and details to be included in project construction.
- P. Erosion control plans.
- Q. Roadway cross-sections.
- R. Final summary of earthwork quantities.
- S. Quantities, cost estimate and bidding schedule (provide hard copy and diskette in Microsoft Excel).
- T. Special provisions (provide hard copy and diskette in Microsoft Word).
- U. Construction schedule.
- V. Environmental permits.
- W. Summary of environmental mitigation measures and disposition.

X. Final design calculations.

NOTE: The ADOT technical reviewer may require checked computations and checked data on the plans required for all of these items prior to submittal.

The ADOT review of this submittal will include technical content, incorporation of previous comments, and completion of design and details, as well as:

- A. Conformance with ADOT requirements.
- B. Completeness of the contract documents.
- C. Compatibility of plans, specifications and special provisions.
- D. Coordination between disciplines, phases and outside parties.
- E. Clarity of the contract documents.
- F. Consistency of presentation.

If additional submittals at this level are required due to noncompliance with this Scope of Work or ADOT's review comments, the work shall not entitle the Consultant to any additional design fees.

1069 Final Stage V Submittal

At the completion of this phase the design, plans and special provisions shall be one hundred percent (100%) complete. The following material shall be submitted for completion of the project:

- A. A complete reproducible set of sealed and signed contract document originals necessary to construct the road and bridge improvements identified in this contract.
- B. A complete sealed and signed reproducible set and one copy of special provisions to cover design items not identified in the ADOT Standard Specifications for Road and Bridge Construction, current edition.
- C. Final and complete quantity summaries and cost estimates.
- D. An estimate of the contract time for the project construction.
- E. Final survey computations and original field books.
- F. Approved environmental permits if required.
- G. A reproducible set of earthwork cross sections by station showing the plotted roadway template superimposed on the plotted natural terrain with quantities, calculations and overall summaries.

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H. Return any documents and other materials provided for use on this project.

NOTES:

1. All seals must be of reproducible quality and all signatures in black ink.
2. All final plan sheets shall be trimmed to 22" by 34".
3. All final plan sheets shall be printed on 20 pound vellum not less than 3 mil nor more than 5 mil.
4. Plan sheets shall be black printing only.
5. Do not use paste-ups, tape or sticky back.
6. Do not use pencil on final drawings.

All review submittal prints of the construction plans shall be clearly stamped "**PRELIMINARY - NOT FOR CONSTRUCTION**". The percentage of completion and date submitted should be clearly evident. Failure to comply may be cause for rejection of the submittal. Only the final, approved plans, properly sealed by an Arizona Registered Professional Engineer, shall be issued without the above stamped notation.